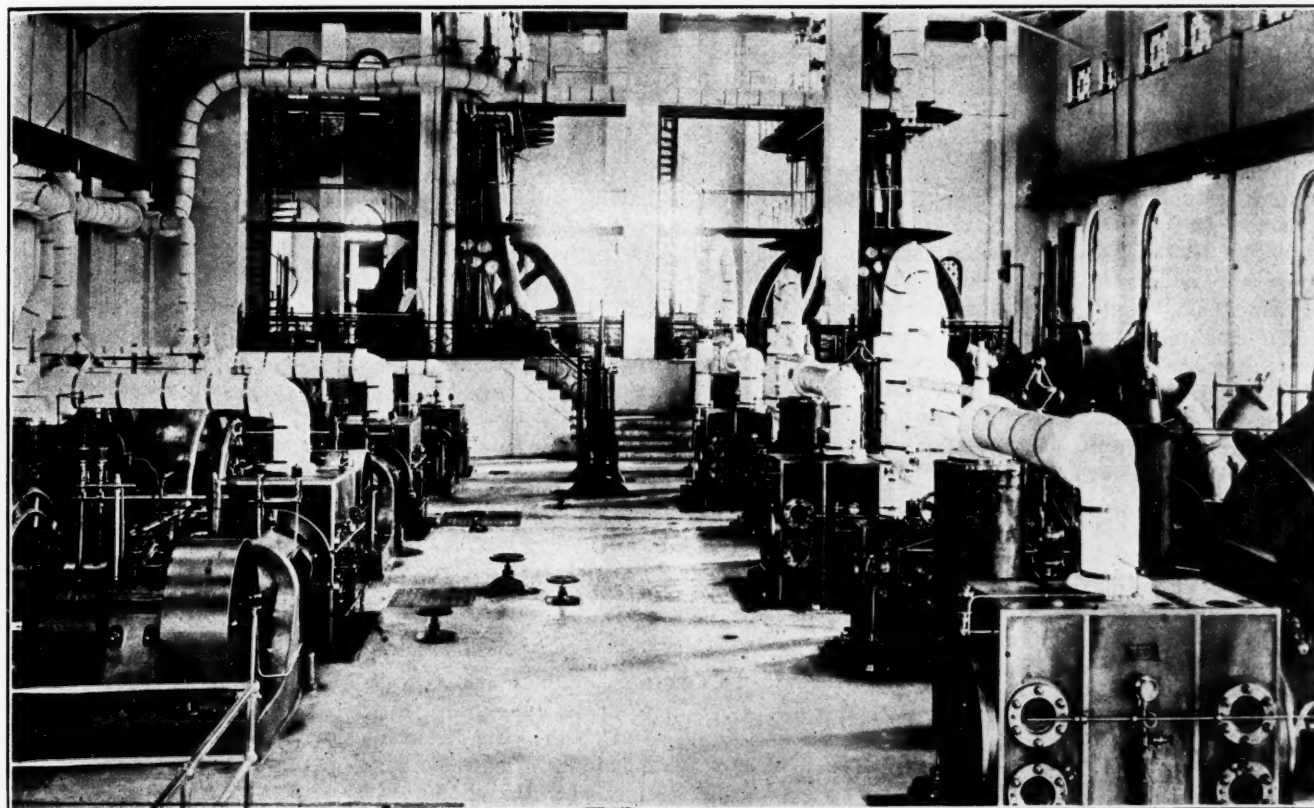


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INTERIOR OF PUMPING STATION, NEW ORLEANS PURIFICATION PLANT.

NEW ORLEANS WATER WORKS PUMPS

Water Raised From River to Purification Plant by Low Lift Centrifugal Pumps—From Clear Water Wells to Mains Under Pressure by Triple Expansion Pumping Engines—Duty Tests

NEW ORLEANS obtains its water supply from the Mississippi River through a cast iron pipe which conducts it to three low-lift centrifugal pumps in the pumping station. These lift it into settling basins where are deposited the heavier particles of grit and silt. Lime and sulphate of iron are added to the settled effluent in mixing reservoirs and the water then passes into the coagulating basins and thence to the mechanical filters, where the process of clarification and purification is completed. An underground clear water storage reservoir, which is connected with the clear water well in the pumping station, receives the effluent from the filters. The flow of the water, from the time it is discharged by the low lift pumps into the settling basins

until it reaches the clear water well, is continuous and entirely by gravity. From the clear water well it is lifted by four pumping engines which discharge it through the distributing system and maintain the pressure upon the city mains.

The chief apparatus in the filtration pumping station comprises six 400 h.p. Heine boilers equipped with Roney mechanical stokers, Sturtevant economizers and Foster superheaters; four 20-million-gallon vertical triple expansion pumping engines; three low lift 40-million-gallon centrifugal pumping engines; one low lift 20-million-gallon centrifugal pumping engine; two 150 k.w. 250 volt engine-driven generators, and all the necessary steam and water

pipng and accessory apparatus. The pumping and generating equipment was furnished by the Allis-Chalmers Co.

This plant was let by contract, in which there was a bonus and forfeiture clause which made it necessary to run very thorough tests on all the machinery; and nearly a year has been occupied in making these. The tests were conducted by the employes of the Sewerage and Water Board, with A. B. Wood, mechanical engineer, in direct charge. The main objects of the tests were to determine the pumping capacity of the engines and the duty upon which to base the payment of forfeiture or bonus.

The high-lift pumping engines are of the vertical triple expansion type with three single acting, outside center packed plungers, each located directly under one of the steam cylinders. The steam cylinders are 28, 54 and 80 inches and the water plungers 31 inches in diameter, the stroke being 60 inches. Each engine is furnished with a surface condenser having 1,800 square feet of cooling surface, located in the main suction pipe.

The capacity of each pumping engine was determined by plunger displacement, all pump valves having been inspected and found tight under full water pressure before the test. The plungers were found by careful calibration to be exactly 31 inches in diameter, and the strokes of all plungers were just 60 inches. The leakage water from the plunger stuffing boxes was weighed continuously throughout the test and found to be less than 200 gallons per hour for each engine. The engineers of the Sewerage and Water Board made a test for slip, using what is known as a Tulane pitot tube, and the capacity determined in this manner agreed with that based on plunger displacement.

The steam consumed during each test was determined by weighing the water pumped into the boiler, and was checked by means of a calibrated water meter placed in the line between the boiler feed pump and the boiler. The water level in the boiler was brought to the same marks on the gauge glasses at the end of the test as it had been at the beginning. Revolution counters, gauges and thermometers were read every five minutes, with the exception of the boiler water level gauge and the steam temperatures, which were read every 15 minutes. Three of the engines were tested under normal capacity and head; the fourth was tested two days under normal conditions, and one day each under normal head and 15 per cent. over capacity, normal capacity and 15 per cent. increased head, and 60 per cent. of normal capacity combined with 80 per cent. of normal head. The duties per 1,000 pounds of dry steam of the four engines under normal capacity and head were 170,833,081, 174,689,922, 174,709,100 and 175,130,669 foot pounds, respectively. Under normal head and 15 per cent. over capacity the duty was 171,444,672; under normal capacity and 15 per cent. increased head, 172,185,913, and under 60 per cent. of normal capacity and 80 per cent. of normal head, 172,847,780. The guaranteed duty was 170,000,000 foot pounds.

The mechanical efficiency of the high-lift pumps, that is, the ratio of the indicated horsepower and the pump horse power, varied from 90.728 to 93.31 under normal capacity and head, and reached a maximum of 94.22 under 15 per cent. increased head.

The low-lift pumping engines each consisted of a horizontal shaft, double suction centrifugal pump, direct-connected to a horizontal cross-compound condensing Corliss engine, the pump being located between the high and low pressure sides of the engine and having its impeller mounted on the main engine shaft. The steam cylinders were 12 and 28 inches in diameter with 24-inch stroke.

The capacity of each engine was determined by a Venturi meter. To overcome any inaccuracy in the readings of the meter register dial, two glass tubes were installed and connected with the leads to the Venturi tube. From

the difference in heads in these two tubes the capacity was calculated by the formula and was found to practically check the readings of the register dial. These three engines developed duties per one thousand pounds of saturated steam of 101,275,623, 99,035,836 and 97,251,303 foot pounds, respectively, all under normal capacity and head. The guaranteed duty was 90,000,000 foot pounds. An additional test was made of the last pump under increased head, when it developed a duty of 99,980,220. The total net head under normal conditions varied from 15.064 to 15.867 in the three tests, while the increased head was 24.973 feet. The efficiency of the pumps, calculated from the i.h.p. and w.h.p. varied from 71.46 to 73.22.

The small low-lift centrifugal pumping engine was similar in construction to the centrifugal engines just described, and was tested in a similar way, developing a duty of 87,768,857 under normal capacity and head; 92,995,081 under increased head, and 55,003,608 foot pounds under reduced capacity and reduced head; the normal head being 12.209 feet, the increased head 19.997 feet and the reduced head 6.215 feet; while the normal capacity was 21,000,000 gallons and the reduced capacity 10,100,000. The combined efficiencies under the three tests were 67.84, 69.28 and 64.37, respectively. The guaranteed duty was 85,000,000 foot pounds.

The plant was in operation some time before the tests were made; in fact, had been in continuous service since February, 1909, and since that time the pressure in the distributing system has been continuously maintained. The daily records, which are carefully kept by the mechanical engineer in charge of the plant, A. B. Wood, and his assistants, show that the machinery is being operated at an efficiency but little less than that developed during the tests.

REPAIRING PAVEMENT CUTS IN EVANSTON

THE street department of Evanston, Ill., refills trenches and restores pavements which have been opened for installing, altering or repairing underground pipes or other structures, whether owned by the city or by private corporations. The cost of this work is charged against the party to or for whom the permit to make the opening is issued. During the year covered by the latest published report, the openings in macadam totaled 628 square yards, being 122 in number, and the total cost of repairing these was \$521.45, or 83 cents a square yard. Sixteen openings in brick pavements, totaling 124 square yards, cost \$74.90, or 60½ cents a square yard. The brick was relaid for the most part, as the sand filler which had been used enabled them to be removed without damage. The old macadam was screened and used in the foundation, but additional stone was added for the wearing course. A steam roller was used to compact macadam repairs. Final restoration was not undertaken until the trenches had settled, and, in the case of macadam, sufficient work had accumulated to furnish a day's work for the steam roller.

CITY PUBLIC SERVICE COMMISSIONS

THE matter of municipal regulation of public utility corporations is a comparatively new one, but such regulation is already exercised by seven or more cities, as follows: Kansas City and St. Joseph, Mo., by Public Utilities Commission; Wilmington, Del., by Board of Public Utility Commissioners; Seattle, by Superintendent of Public Utilities; Los Angeles, by Board of Public Utilities; St. Louis, Mo., by Public Service Commission, and Houston, Tex., by a Public Service Commissioner. It is reported, but not confirmed, that Joplin and Chillicothe, Mo., also exercise such control.

For the above information we are indebted to James McKirdy, assistant director of the Pennsylvania Legislative Reference Bureau, who states that the list is complete so far as he has been able to ascertain.

CLEANING SEWERS IN SPOKANE

By B. A. BRACKENBURY, Engineer in Charge of Sewers, Spokane.

THE streets in the business portion of Spokane, Wash., are cleaned by the use of pressure flushing tanks. This method washes a large amount of sand, gravel and other debris into the sewers, which are small and built on very flat grades throughout the business district. The result is that considerable trouble is caused by the sewers silting up. In one or two places it is necessary to clean them at least twice a year, and in almost all cases at least once a year.

In doing this the Maintenance Division, up to the season of 1910, used a log chain about 25 feet long, doubled twice, making an effective length of about 6 feet. To each end of this chain arrangement was attached a $\frac{3}{4}$ -inch rope, the other ends of these ropes being attached to two windlasses placed over adjacent manholes at each end of the length of the sewer which it was proposed to clean. With this arrangement of ropes and windlasses, the process of cleaning was accomplished by dragging the chain back and forth and at the same time using a $2\frac{1}{2}$ -inch fire hose stream to wash the debris down to the lower manhole, where it was caught and taken out.

This method, however, was not at all satisfactory, and consequently a drag bucket or scraper about 14 inches long and varying in size according to the size of the sewer to be cleaned was adopted. This drag bucket or scraper is operated in the same manner as the drag chain above described, except that no stream of water is used. The scraper is drawn into the sewer from the lower manhole for a sort distance and then pulled back. The bucket or scraper is so hung that on the return pull it fills and pushes all before it. This process is continued until the upper manhole is reached.

This method of cleaning the sewers is proving very satisfactory. While the former chain method stirred up and made it possible to remove only a part of the collected debris, the scraper method thoroughly cleans the sewers and does it at a cost that is little or no higher than it was under the former method. It is used almost entirely throughout the city, although the chain method is still occasionally employed in the outlying districts.

Below is given a detailed cost of cleaning 2,562 feet of a 10 and 12 inch line which is built on a grade of about .003 and causes a very considerable amount of trouble. This line runs through the cheap lodging house district and in some manner collects a very large amount of coarse material that should be disposed of as garbage. This sewer is laid on the center line of the street between two street-car tracks, which location greatly interfered with the operation of the windlasses.

Each windlass required two men on the surface to operate it, and one man was stationed at the bottom of the lower manhole to care for the emptying of the scraper into a hoist bucket. The men were paid \$3.25 per day. The job took fourteen days. The sewer was found to be about one-third full of deposited debris, which required the removal of about 23 cubic yards.

The total cost of equipment used by the crew was about	\$50.00
The total cost of wages for five men, 14 days, at \$3.25 per day.....	227.50
Labor cost per foot of cleaning 2,562 feet of sewer0888
Labor cost per cubic yard of removing 23 cubic yards	9.89

The above line is probably the most troublesome one we have and, consequently, the most expensive to maintain.

During 1911 the Maintenance Division had 106 miles of sewer to care for. This attention included the opening of clogged catchbasins and the cleaning out of the same; also the removing from the sewers of roots, of

which trouble we have considerable, and the cleaning and keeping in perfect operating condition the entire sewerage system. The system is built partly as a combination and partly as a separate system, with no pipe smaller than 8 inches. The total actual cost of the above work for 1911 was \$8,602, or \$81.15 per mile. On a basis of cost of maintenance per foot of the entire system, the above gives \$.01537. The total length of 106 miles is the total length of the sewerage system and does not include any house or catchbasin connections.

COST ACCOUNTING IN LYNN

System in Use in the Department of Streets and Highways—Labor, Material and Job Cards—Ledgers

By HARRY T. RICHT, Chief Clerk, Department Streets and Highways.

THE present system of accounting in use by the municipal departments of the city of Lynn, Mass. (which is now under the commission form of government), is a revision of the system used by the former government, which latter, although theoretically a very good one, entailed the use of very cumbersome loose leaf books and a great deal of duplication. This has been discarded without losing any of the efficiency, and we have waited until one change was thoroughly established and proven before making the next, which has enabled us to keep up the work at all times. While this system is undoubtedly not perfect, the writer believes that it is very accurate and simple, and it gives an immense amount of detail required for accurate cost accounting. The writer has been engaged for practically a year in developing the present system for the Department of Streets and Highways, the operation of which he has endeavored to explain below.

The sewer and street division accounts are kept separately.

All general materials are purchased and all machines, such as road rollers, concrete mixers, etc., are bought or maintained under one appropriation.

As they are used on work paid for by another appropriation, they are charged to that appropriation, the amount being credited at the end of the month to the appropriation under which they are bought or carried.

In the sewer division all pipe is bought by the construction appropriation, and the cost of all other materials is credited to the street division appropriation buying them.

The only exception to this is special material purchased for an individual job, and this is charged direct to the job when the bill is approved.

All bills are rendered in duplicate and checked with the requisition for the material, the amount of the bill and date of approval being entered on the face of the requisition, effectually preventing the possibility of duplicate payments.

Material is ordered by requisition on the purchasing agent, who makes the order on the dealer, sending to the department a duplicate copy. When the material is received that fact is noted on the duplicate copy and returned to the purchasing agent, who checks the bill for price and forwards to the department. All bills are required to show the order and requisition number.

Once a month the bills are listed and forwarded to the auditor, the duplicates being retained in the office. These duplicates are then sorted by appropriations and further subdivided by classes, such as maintenance of tools, etc. To the front of each month's bills is attached a summary which shows the subdivision totals. These totals are then posted to the proper job cards, the total of each appropriation being entered on the appropriation card as a lump sum.

Form E439 is a receipt and is taken in duplicate by the driver for every load delivered on a job, the original being

[illegible]

JOB CARD FOR SIDEWALK AND STREET CROSSINGS.

headings of the columns explaining themselves. In the teaming column, if the teaming be done by an outside or hired team it is designated with the letter O placed against the amount.

When an entire day is entered on the job cards the day's work is proved as follows: The total amount of the job cards (second column) must equal the sum of the total of the material cards and the total of the first columns of the appropriation cards; also the total of the second column of the appropriation cards must equal the total of the second columns of the job cards. This agree-

man, he being given the price of all articles issued to the shop. As he will use a few nails, a little paint, one or two bolts, etc., this method has been deemed accurate enough to answer, and practice has proven that a very slight gain in material is made, which usually is enough to also cover the cost of light and power.

The stock account is also carried under the same appropriation as is all material. When stock is issued form E406 is filled out and forwarded to the main office, where they are sorted and entered in the journal.

The stock and shop slips are both entered in the journal weekly, first being sorted into subdivision of appropriations. The regular time slip for the shop is sorted with all other time slips and the amount entered on a job card, a job card being carried for the crusher, stone yard, etc.

The first two columns of the journal show totals, the amounts being further extended under the proper headings, the first two columns being of no practical use except as a check on extensions.

A loose leaf ledger termed the "Summary Ledger" is used to collate all totals under the proper headings. This book will show the total amounts expended for any one material or the amount used under any one appropriation, except for individual jobs, which can be obtained

from the job cards. For instance, take the heading "Stable Account"; this book will show the cost of hay, grain, straw, labor, harness, etc.

The final book is the private ledger and shows the total amounts expended, transferred or received under each separate appropriation, and finally, under the city of Lynn account, shows all expenditures, transfers, etc., rolled into one.

Receipts and transfers are obtained from the auditor's monthly statement, the transfers being checked up by the transfer bills and transfers ordered by the Municipal Council, and the receipts by bills sent out from the office, except in the case of assessments.

Form 409 is used to post the hours worked by an outside team, as they are turned in by the foreman on the time slip, and is used to check the bill by when rendered. All bills for outside teams are paid

[illegible]

FORM 391.

[illegible]

FORM E 406.

ing of totals obtains all through the work and is a constant check on the figuring and entering of the various amounts.

The repair shop is carried under the same appropriation as material and machinery. This shop does the repair work for the Streets and Highways Department only, and the method of accounting saves quite a little clerical labor. If it was a general repair shop for all departments a system of job orders would undoubtedly be necessary.

The foreman of the shop turns in the time on a regular street division time slip. He also turns in one of form 391 for each separate job. The total time of these slips is checked with and must agree with the total of the regular slip. At the bottom of the slip is given a list of the material used, and the cost of this is determined by the fore-

[illegible]

SUMMARY LEDGER.

Form 600, 5-15-71.

Department of Streets and Highways.

OUTSIDE TEAMING

19

Date	Teaming Details	Extra Man	Asst.	Date	Teaming Details	Extra Man	Asst.
1				17			
2				18			

FORM 409.

by the one appropriation and charged to the one using it in the same manner as one of the department teams.

ST. PAUL'S SAND ROCK SEWERS

Tunnels and Drop Shafts Cut Out of Sand Rock Thirty Feet or More Below the Street Surface—
Construction Details

By C. H. HARROLD, Office Engineer, Department Public Works.

ST. PAUL, Minn., is rated by the United States Census of 1910 as the healthiest city in the United States. This is due in a large measure to its excellent water supply, owned and distributed by the city, and to the drainage system which has been provided for the disposal of sewage and storm waters. Built on three levels, two of which are virtually solid rock, the city has met and solved many interesting problems in the construction of its sewer system. In general, the wholesale, railroad and warehouse district is on the first level, geologically the original bed of the

The main sewers and laterals on the first plateau district are tunnels drifted through the sand rock 30 to 40 feet below the street level. Small laterals and house drains are connected to these tunnels by vertical drill holes. In some instances business houses are connected to the main sewer by a lateral drifted through the sand rock under the property and the house drain connection made by a vertical drill hole, the cast iron pipe extending down to the rock.

Figs. 1 and 2 show the standard sand rock tunnel and sand rock lateral respectively as used in the first plateau district and fig. 3 the standard manhole, drop shaft and small lateral connection, made by a vertical drill hole in order that workmen may use the drop shaft for entering the main sewer.

In order to take care of the sewage and drainage of the second plateau district, several long tunnels have been hewn out of the sand rock at a safe distance below the top of the stratum extending under the city for some distance, and vertical shafts constructed to connect different sewer districts with them. One of the notable constructions of this kind is the Somerville Ave. tunnel, built in 1904 and 1905, primarily to take the sewage from St. Anthony Park, a residence district having an elevation of 250 to 300 feet above the river. (The St. Anthony Park Sewer system totals 19.25 miles of sewer.) This tunnel is 6 feet wide, 6 feet 6 inches high and 2,615 feet long, and has a maximum depth below the surface of the street of 155 feet. The sewage of St. Anthony Park is brought to the drop shaft at the intersection of Eustis street and Somerville avenue through a brick circular sewer 7 feet 6 inches

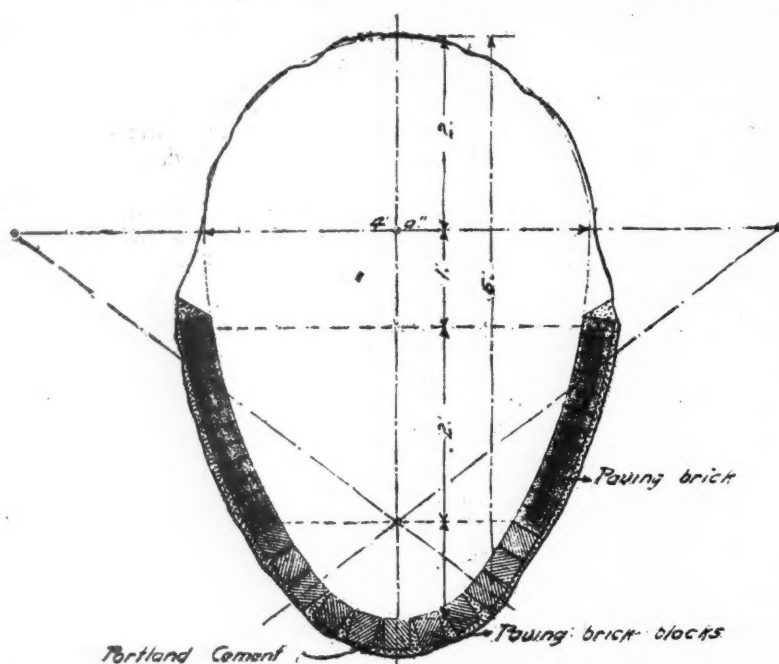


FIG. 1—SECTION OF 6-FOOT BY 4-FOOT SAND ROCK SEWER TUNNELS.

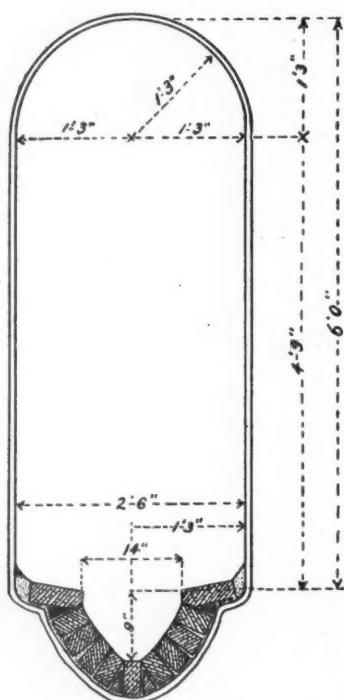


FIG. 2—SECTION OF SAND ROCK SEWER.

Mississippi river, and 40 to 50 feet above city datum. This datum is approximately mean water level and 694.795 feet above sea level, Biloxi Datum. The retail district and the beginning of the residential district are located on the first plateau, which has an elevation of 90 to 120 feet; and the resident district on the second plateau at an elevation of 175 feet to 300 feet. The plateau districts have a sand rock foundation, the elevation of the top of the rock strata being 60 to 72 feet. Above the sand rock there is a limestone, with various formations above that, including, in places, a bed of quicksand.

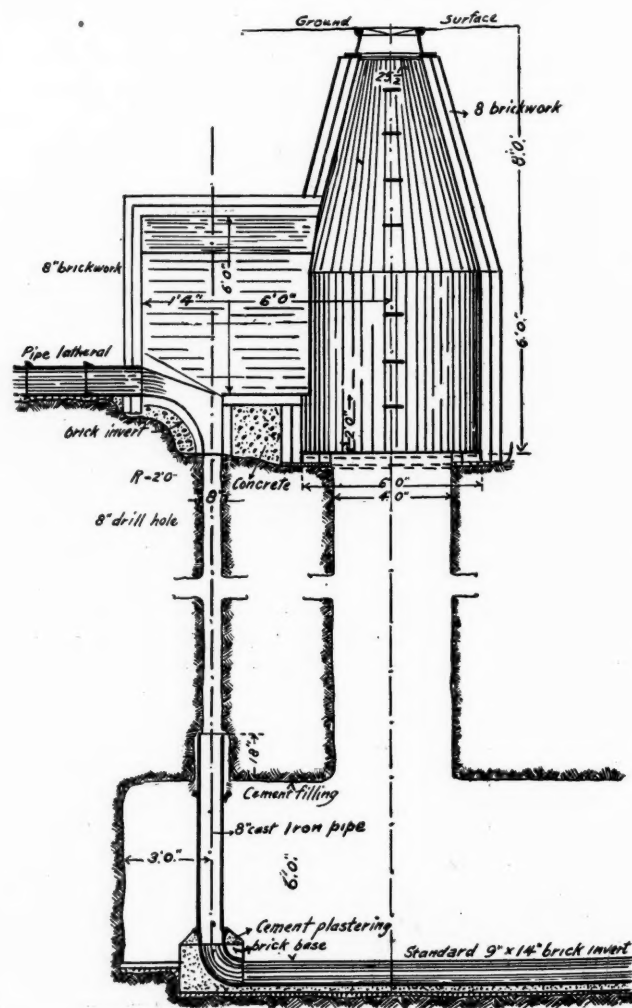


FIG. 3—DROP SHAFT.

in diameter, 1,695 feet long. The manhole of the drop shaft has an elevation of 173, the bottom of the circular sewer an elevation of 156 feet and the bottom of the sand rock tunnel an elevation of 48 feet, the sewage making a vertical drop of 108 feet. The shaft is extended down to 10 feet below the sand rock sewer to form a sump or cushion, making the total depth of shaft from street surface to sump bottom 135 feet. Fig. 4 shows a profile of the tunnel on Somerville avenue and the drop shaft connection to the circular sewer at the upper level. The drop shaft is 5 feet square, and extends vertically from the center of a circular manhole 10 ft. in diameter at the bottom and 11 feet deep. The 7 ft. 6 in. circular sewer changes to 5 ft. by 14 ft. at its junction with the drop shaft, the profile of the invert following a 90 deg. arc of 18 ft. radius. Fig. 5 is a section of the sand rock tunnel. This tunnel has an outlet at the river. Its grade is 1.4 per cent. It was constructed by drifting in from the face of the cliff at the river, taking the material out in 1-yard dump cars by gravity. Blasting was resorted to, about six drill holes being placed in the face and fired at one shot. Air was provided for ventilation through a 6-inch wrought iron pipe by a Sturtevant fan and gasoline engine. The tunnel was built to exact line and grade. The material was disposed of at the mouth in accordance with instructions from the United States engineer. The granite paving was laid in a bed of Portland cement mortar, with a maximum joint space of $\frac{1}{2}$ -inch, thoroughly filled with mortar. In the brick side walls a paving block was used,

hard enough to stand without support. The excavation for the shaft was made around a 6-inch drill hole to the

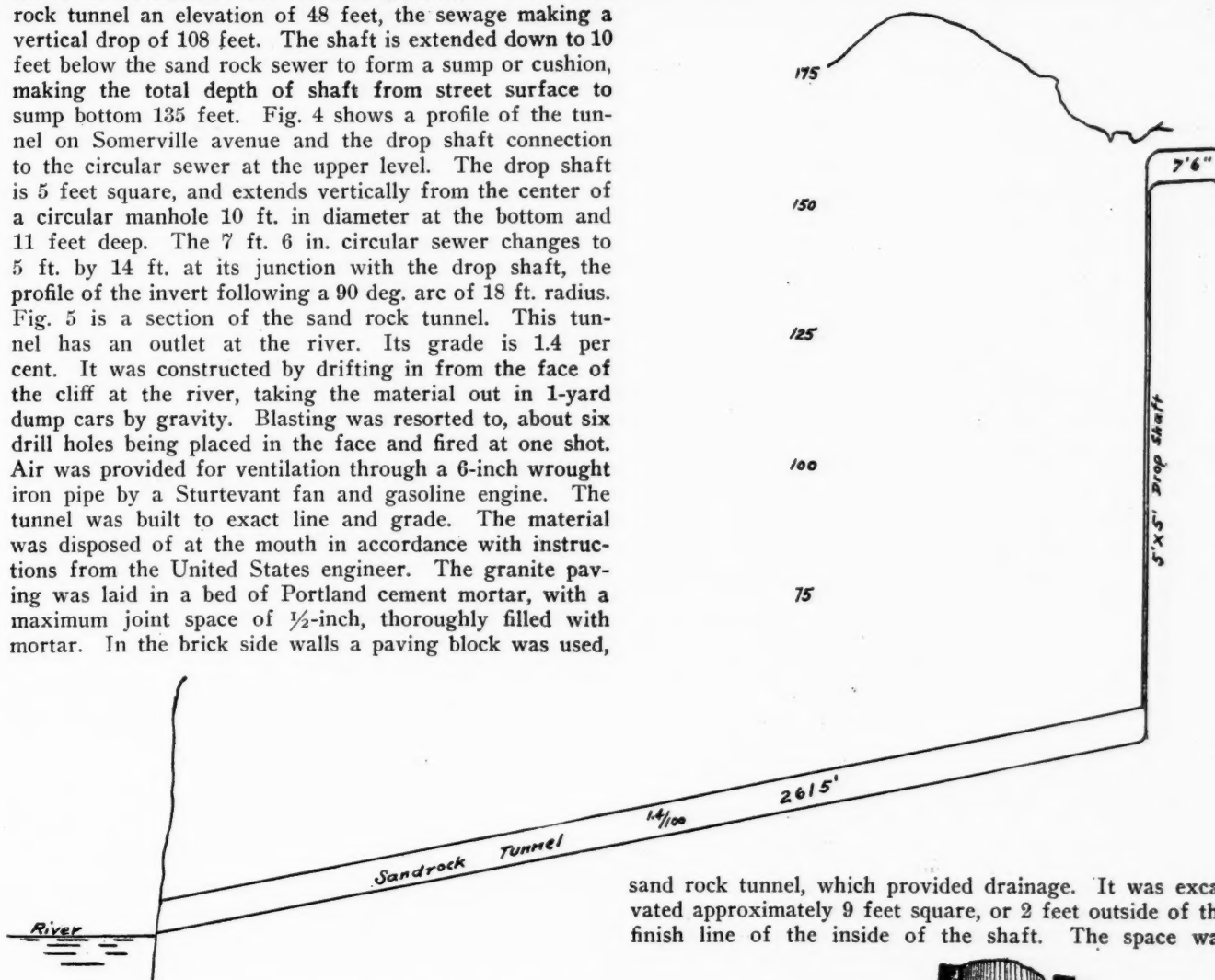


FIG. 4.—SOMERVILLE AVENUE TUNNEL AND DROP SHAFT.

laid up in Portland cement mortar, true to line, and back filled with cement and rubble. At the shaft and at the mouth the tunnel was arched over by turning a concrete arch on the brick side walls for 15 lineal feet. The balance of the tunnel was not arched, the sand rock being

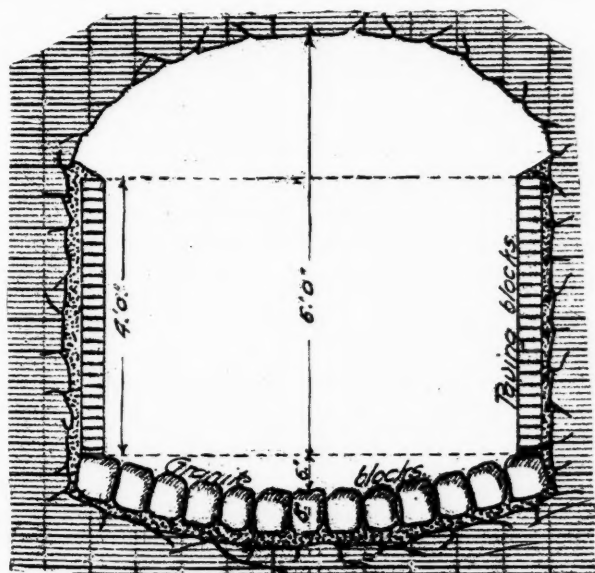


FIG. 5.—SOMERVILLE AVENUE SEWER.

sand rock tunnel, which provided drainage. It was excavated approximately 9 feet square, or 2 feet outside of the finish line of the inside of the shaft. The space was

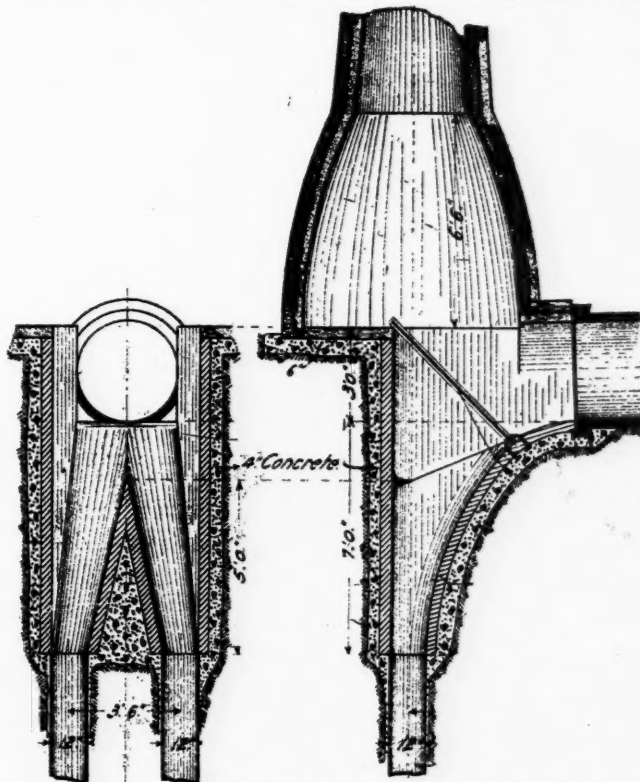


FIG. 6.—MANHOLE SHAFT.

The 12-inch drop pipes are of wrought-iron; diagonal grating (shown in middle of figure) of $\frac{3}{8}$ -inch round bars. Manhole cover is provided with locked lid.

filled with concrete, or rubble, after the 12-inch mantel blocks were laid. The granite blocks are obtained from local quarries. The log of the shaft excavation shows earth, blue clay, soapstone, with thin limestone strata, quicksand, limestone and sand rock.

A total of 27.6 miles of sand rock tunnels have been constructed to date under the city of St. Paul for drainage purposes. There are a number of built shafts similar to the one above described, but of smaller cross-section, and numerous drill holes connecting the higher level drainage system with these tunnels. Figs. 6 and 7 show the connection of the 30-inch sewer on St. Anthony avenue to the

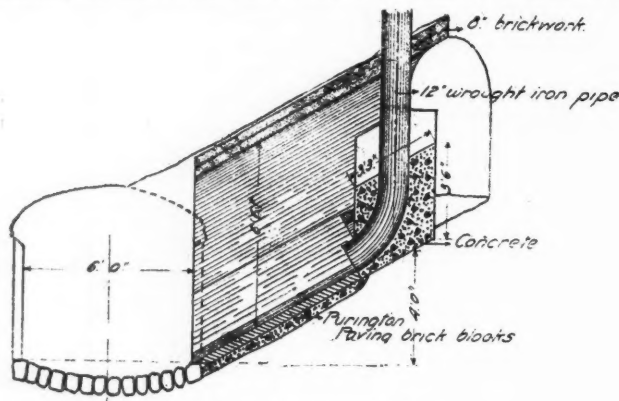


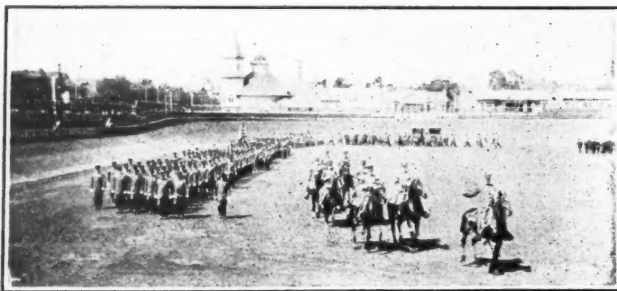
FIG. 7.—MANHOLE SHAFT.

Somerville avenue sand rock tunnel by means of two 12-inch drill holes cased with wrought iron pipe, a contract for which work has just been let.

The sand rock is a cemented formation of pure white sand. The grains of sand are pure crystal quartz, almost perfectly round and of quite uniform size. It is quite dense and hard but cuts readily with a sharp instrument.

REVIEW OF LOS ANGELES POLICE

AN annual review of the police force of Los Angeles, Cal., was held May 1 before the mayor, police commissioners and the general public. It was held in a large square called Fiesta Park, which is used as a race course for motorcycles. About one-half of the entire force, or about 300 men, took part in the review, uniformed in their summer dress of olive drab, very similar to the U. S. Army officer's uniform. The caps are of the same material and tan shoes are worn. There were included in the review representatives of the mounted squad, the motorcycle officers, and five of the patrol and emergency automobiles. In returning to police headquarters through the streets all traffic was suspended while the police demonstrated their riot drill, forming a hollow square and throwing out flank-



LOS ANGELES MOUNTED SQUAD AND PATROLMEN.

ers in all streets which intersected the line of march down Broadway. This movement is intended to drive mobs from a street and at the same time protect the officers from attacks from the rear or flanks. The annual drills of the Los Angeles force have acquired such a reputation that a motion picture firm paid a considerable amount to the police pension fund for the privilege of taking films of this year's review.

REFORMING CITY BUSINESS METHODS

Aims and Methods of a Bureau Organized to Bring About Improved Methods of Municipal Accounting and Reporting

By U. L. LEONHAUSER, Secretary Metz Fund.

MORE than two hundred cities of over 25,000 population are either neglecting or attacking in isolation the important duty of raising the level of city business to that of the *best* private business efficiency.

Four years ago then-Comptroller Metz of New York City began, with citizen co-operation, to reorganize New York City's accounting and business methods, which had grown up without plan or reason through all the stages of New York City's municipal development.

The Comptroller, a successful business man, began the gigantic and inspiring task of righting New York's business habits with determination to make it possible for future administrations of New York City to deal with current problems of administration on a basis of fact and information, conditions indispensable to successful business management.

In reorganizing the accounting system of New York City and beginning the work of systematizing and simplifying New York's business habits, Comptroller Metz started a movement which is profoundly affecting not only the way in which New York City is governed, but the thinking of officials of other cities regarding questions of city administration.

So impressed had he become with the need for new standards and new methods in city business, that, at the completion of his term of office in 1909, he offered to the Bureau of Municipal Research \$10,000 a year for three years to bring to every city in the country, currently and accurately, information regarding the progress of business reform in New York City.

It was clear, not only because irrevocable steps had been taken, but because Comptroller Prendergast, Mr. Metz's successor in office, had definitely announced his intention of continuing the work, that New York City would for some years continue to serve as an experimental station in conducting city government by modern business methods.

The Metz Fund is, in a sense, the extension branch of the Bureau of Municipal Research. Its program is "to carry the message to Garcia" to every city of the United States. Its message is better business methods for cities, meaning better accounting, budget, reporting, purchasing and work methods. Its "Garcia" is every mayor, comptroller and progressive department head of every city in the United States.

Before making his gift, Mr. Metz inquired of the National Comptrollers' Association whether they would welcome co-operation of this character. Assured of their co-operation, the point of first attack has been upon the accounting methods of cities. Because even accounting officers frequently find it difficult to understand the apparent complexities of scientific accounting, particularly municipal accounting, where the numerous relations of funds established by law or appropriations for special purposes must be kept distinct, the Metz Fund has attempted to present in the simplest form the essential principles of scientific municipal accounting.

For eight months a monthly bulletin on this subject has been issued called "Short Talks on Municipal Accounting and Reporting." It is sent to every accounting officer of every city with more than 8,000 population and to leading citizens known to be interested in promoting efficient government in their communities. The publication of these bulletins represents the first continuous effort ever made to establish a uniform system of accounts in every American city based upon modern, scientific principles.

Reaction from this educational campaign has been encouraging. Officials have availed themselves of the opportunity to ask detailed questions and here and there attempts have already been made to apply the principles laid down in the bulletins to department accounts.

The comptroller of Utica, New York, for example, in transmitting to the mayor and council his report for 1911, just issued, states:

In the preparation of balance sheets an effort has been made to conform, so far as appeared practicable for the city of Utica, to suggestions and models which the Metz fund for the improvement of municipal accounting has issued during the past year. The "Short Talks on Municipal Accounting and Reporting," put into circulation through this fund, which is associated with the Bureau of Municipal Research, comprise a series of instructions which are bound to be of profit to all who study them.

The city auditor of a Massachusetts city writes:

I feel very grateful to you for the interest you are taking in helping me to place before our citizens something tangible in the line of a business statement of the condition of the city, looked at through the glasses of business men.

A fiscal officer of a thriving Southern city writes of the "Short Talks":

* * * They have been of inestimable value to us. * * * I am keeping every one and reading and rereading them over again and again, and putting in practice as many of the good things as possible.

* * * is a city with a population of * * * and bids fair to be one of the largest cities in the South, and these articles are of great importance to us at this time. * * *

The treasurer of a Massachusetts city wrote recently:

It is a splendid and unfortunately a much-needed work that you are engaged in, and I am sure you will have the thanks and, whenever possible, the help of every municipal official who has a pride in his work, and a desire to produce the best results.

These statements are quoted to show that city officials welcome suggestions where they are of a practical and helpful nature.

The press, the country over, has welcomed the stimulus to better city business methods given by the continuous Metz Fund campaign.

The "Short Talks" published to date, cover such important points as:

1.—Preparation of revenue and expense statements, pointing out the fallacy of the usual municipal practice of accounting only for cash receipts and cash disbursements.

2.—The general account balance sheet, which, when provided, shows the assets and liabilities growing out of current operation, with a discussion of the need and value of balance sheet statements in city government.

3.—The fund balance sheet and summary consolidated balance sheet, the first showing the status of special funds and appropriations; the second giving a complete view of the city's whole financial condition.

4.—The capital account balance sheet contrasting the city's fixed assets with its liabilities and bonds outstanding, etc.—a practice foreign to nearly every American city.

5.—The sinking fund balance sheet and trust fund balance sheet, completing the series of balance sheets and pointing out the need for scientific development of sinking funds to amortize outstanding bonds, now often neglected.

6.—Functional expense and cost accounts, the indispensable instruments of wise city management and efficient city citizen control.

7.—Collecting and controlling revenues, illustrating the need for a centralized control over revenues due the city, urging the "conservation" of municipal resources through stopping the gap existing everywhere between money due the municipality and money actually paid into its treasury.

8.—Controlling and recording expenditures showing how a systematic business procedure may be introduced through

which responsibility for each step taken in incurring expenditures may be located, and explaining the accounts which it is necessary to keep.

Four Talks yet to be issued will deal with control over municipal stores, tools and other movable property, how to prepare payrolls and how to use time and service reports, a discussion of how a public official may use municipal reports effectively, and finally, suggested steps which cities may profitably take in establishing efficient and modern accounting and business methods.

The purpose of this series is to make available to every municipality a working program, which, if followed, will produce a scientific system of records and accounts. The Talks, somewhat expanded, will presently be published in book form. The plan pursued in preparing a simple handbook on accounting for city officials will be followed in other fields of municipal business.

The Fund has in preparation a handbook on budget-making in the hope of establishing a common practice in this fundamental process of government which is now performed unscientifically in every conceivable manner, but which readily lends itself to precise and efficient treatment.

Purchasing and standardization will be discussed in a separate handbook, presenting information on more advanced purchasing methods employed in cities and private corporations and discussing the important subject of standardization of supplies and specifications. However honest city officials may be, so long as they employ unstandardized and loose methods of purchasing, they will continue to countenance waste through excessive prices, deficient quality or the use of unnecessarily expensive goods where cheaper grades would serve as well.

To learn what so-called government by commission means in respect of a broader city program, greater efficiency of methods and a more businesslike administration, the Metz Fund in 1911 made a comparative administrative "field" study of ten commission cities. Thirteen hundred questions bearing upon program and administrative methods were addressed in person to fifty commissioners and their subordinates. Facts regarding methods employed and principles of efficiency observed or neglected were carefully recorded. The plan of inquiry included (1) survey of the physical condition of cities, (2) conference with representative citizens of all kinds, (3) critical examination of (a) organization, (b) personnel, (c) records and (d) work methods. The study showed that although the commission plan gives a new impetus to city government, and although the new form of organization lends itself to efficiency more readily than the old, commission government does not necessarily mean progressive, efficient and businesslike government.

The results of the study are now being brought together in book form and it is hoped to give, not only a view of how commission government is now working, but a suggestion for introducing into the commission plan scientific business methods and a wider social program, including extensions of health and social betterment work with the hope that commission government will come to mean, where tried, efficient and progressive government as well.

In addition to aiding municipal officers, the Fund has placed the services of its experts at the command of State officials responsible for supervising the accounting procedure of the cities of their States. This power, now for a number of years vested in the central accounting officers of certain States, is still to be utilized to bring city accounting methods to a high level of efficiency. By working through and in co-operation with State supervisory officials the Fund is able simultaneously to influence the methods of scores of cities.

Where printed matter does not give information in sufficient detail or fails to make points clear the Fund is

equipped to provide careful answers to official and citizen questions.

The Fund invites city officials to confer with its experts on problems confronting them. Out-of-town conferences are arranged at the cost of time and traveling expenses involved.

REVENUE FROM MUNICIPAL WASTE

Possibilities Connected With Garbage, Ashes, Rubbish and Dead Animals—Market Value of Waste Materials and Products

A COMMISSION of New York City known as the Commission on New Sources of City Revenue in March submitted an interim report dealing with the possibilities of obtaining revenue from the refuse of the city. At the present time the city is under contract to pay \$19,444 a year for disposing of the garbage from the borough of Brooklyn and \$45,000 for the boroughs of Manhattan and the Bronx; the amount of garbage collected in Brooklyn in 1911 having been about 117,000 tons and in Manhattan and the Bronx about 225,500 tons. Although there are no figures available, it is believed that a considerable amount of fat and bone is withheld from the garbage by hotels and apartment house janitors and sold to private scavengers. An indication that there is considerable business done in this line is given by the fact that the Department of Health in one year issued permits for 156 wagons to collect fat and bone, 64 to collect swill, 100 to collect garbage, 41 for grease, 3 for offal and 779 general scavengers. It is estimated that the grease and tankage found in an average ton of the city's garbage has a commercial value of \$4.00 per ton, which would show a total value for the three boroughs of \$1,370,472 during the year. If the city refused licenses for private collections of fat and bone it is believed that the value of the garbage would be increased to probably \$1,500,000, whereas nearly \$65,000 is paid out to private parties for disposing of the garbage.

The ashes and rubbish of Manhattan and the Bronx are removed on scows, 50 to 60 per cent. of the material being used for filling city land at Rikers Island, a contract price being paid for towing and unloading the material, and the remaining 40 or 50 per cent. being the property of the contractor to dispose of as he sees fit. Considerable marketable material is included in the rubbish, and the city receives from a contractor \$1,717 a week for the privilege of picking over the rubbish and removing this material and in addition the contractor performs all the labor necessary for trimming the scows, which would cost the city over \$200,000 a year. In Brooklyn the removal by water is not practicable, and the material is hauled to stations, where the salable material is picked out, the combustible is burned by incinerators and the incombustible, non-salable material, including ashes, is the property of the contractor and is used by him for filling. In 1911 \$203,000 was paid for removing the rubbish from Manhattan and the Bronx, and \$601,471 for that from Brooklyn at a rate of 34½ cts. per cubic yard.

It is stated that 1,000 cart loads of rubbish which were analyzed showed 9 tons of tin cans, 30 tons of paper, 16 tons of rags, 9,600 bottles, 47 barrels of broken glass, 3,000 empty barrels, 9 tons of old iron and 1,700 pounds of rubber and miscellaneous metals. For the paper and rags there is a steady demand in the paper stock trade, as they are extensively used in making paper board. Tin cans are de-soldered for the reclamation of the solder and the metal is rolled into sheets from which are punched button backs and washers used in nailing down tar or building paper, while the remainder is melted into sash weights. The sheets are also frequently used for filling for walls in fire and burglar-proof safes. Registered bot-

tles, such as milk and beer bottles, are sold to their owners at a considerable price and the other bottles and broken glass can be remelted, or broken up and used in making artificial stone and tile. Empty barrels are sold to commission merchant for use in distributing vegetables.

The *Waste Trade Journal* of February 3, 1912, gives the following market quotations for waste materials: Tin cans, \$40 a ton; paper, \$2.50 per ton; rags, \$25 a ton; old iron, \$9 a ton; rubber, \$180 a ton. If all of the refuse of the city contained the same percentage of marketable materials as indicated by the figures above, the value in 1911 of these materials in New York's rubbish would have totaled about \$437,000, in addition to the considerable sums to be derived from the sale of 3½ million bottles, 17,000 barrels of broken glass and 111,800 empty barrels.

Concerning the value of street sweepings, the Commission is not so sanguine. An estimate of the value of the nitrogen, phosphoric acid and potash contained—that is, its value as a fertilizer—is \$2.06 per ton of street sweepings. It seems to be a fact, however, that the farmers in the vicinity of New York refuse to even pay the freight on these sweepings, preferring to use commercial fertilizers, which are more convenient for use. The presence in the street sweepings of stone dust and the abraded dust from horses' shoes and vehicle tires is very undesirable.

Of ashes, more than two million tons a year are collected from the three boroughs named, of which about one-third is estimated to be combustible coal. If we consider this as worth \$2 a ton, this gives a total value of about \$1,350,000. The fine ashes screened from the coal, if mixed with lime and other constituents, is said to make a good grade of cement; or it may be used in combination with common brick clays, which combination, when burned, gives a slow vitrification which produces an excellent quality of paving brick at a reasonable cost. Also, as they contain appreciable amounts of phosphoric acid, potash and nitrogen and a high-absorbing power, it is believed that they would form a good base for fertilizer. What is known as steam ash is used for foundations for sidewalks and concrete for floor slabs to such an extent that sufficient cannot be found to fill the demand.

For the disposition of dead animals and offal, the city pays private parties \$50,000 a year. Last year there were removed 19,921 dead horses, 8 mules, 8 donkeys, one colt, 57 ponies, 359 cattle and 12 other large animals; also 476,512 small animals, of which 475,030 were cats and dogs. There was also removed 4,487,105 pounds of meat, fish and offal. This material has considerable value, and this is beginning to be realized by several cities. Baltimore, Boston and Washington have arrangements by which dead animals can be disposed of without charge to the city. The Commission refers to a description in *MUNICIPAL JOURNAL* for July 6, 1910, of the arrangement made by St. Louis by which she receives from a private company \$5,100 a year for the privilege of utilizing these dead animals, they being delivered to the company by the city at an annual cost of about \$4,500. Thus she receives a net income of \$600 a year from about 2½ per cent. as many animals are removed from New York City, from which it would appear that New York should receive at least \$20,000 a year from the sale of these rather than paying \$50,000. Oldenburg, a small German city, is said to obtain an average price of \$40 per ton for its dead animals.

The Commission, in view of the above considerations and figures, believes that the wastes of the three large boroughs of the city have values as follows: Garbage, \$1,500,000; rubbish, \$500,000; dead animals, \$500,000; ashes, \$1,500,000; a total of \$4,000,000. "That the annual value of these wastes as raw material should not in itself cover the cost of reduction and also leave a fair profit is hardly plausible. It seems that the city, instead of paying, should derive a very substantial revenue from this source."

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Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper, either in the form of special articles or of letters discussing municipal matters, are invited and paid for.

Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

JUNE 6, 1912.

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Records of Street Work

CONSIDERABLE space is given on another page to a description of how a Massachusetts city of less than 100,000 population keeps complete records of the transactions of its Streets and Highway Department, with checks on the work of both foremen and clerks. This may not be the best system used by any city, but it is the best the Lynn department knows of, and it certainly should be studied by department heads in other cities for suggestions, if not adopted as a model.

Among the excellent features is the method of distributing all expenditures to job cards, so that the total cost of each job and of the several items is known with no further calculation; the amount of each item of work done also being given, so that unit costs can readily be calculated. There seems to be full provision made for checking and proving all these accounts, so that no errors may be overlooked or transactions hidden.

Some city engineers of small cities will doubtless say that this is too complicated for their cases, and the expense too great. To a certain extent this may be true,

but there is no information provided for in this system which should not be recorded by the engineer or street superintendent for every job. A little ingenuity will simplify the process of collecting and recording the data, and where few blanks of a given kind are needed they can be prepared on tracing cloth and black-and-white or blue-on-white prints made at small expense.

Refuse Disposal at Evanston

THE city of Evanston, Ill., has for some years operated a garbage crematory, but during the past two years or more it has been used only intermittently, as farmers take practically all of the garbage collected by the city and would be glad to receive more. This suggests the idea of a municipally operated farm on which poultry, swine and the growing of feed for the same could be made the means of utilizing the city's garbage, and this was suggested by the mayor in his annual report published about a year ago.

Figures from the latest published report show that during the year covered thereby 2,800 tons of garbage were collected at an average cost of \$1.1379 per ton, of which 2,317 tons were removed by farmers and the remaining 483 tons were cremated. This was the highest cost per ton during the past five years, the cost in 1906 having been 95.93 cents. During the year repairs to the furnace and a new steel smoke-stack cost about \$375, a fireman for operating the crematory was paid \$240 and fuel cost \$333.34, making the total cost of operating and repairs for the crematory \$948.20. The cost of operation was therefore \$1.19 per ton actually cremated, and the total cost of operation and repairs was \$1.96 per ton cremated. These high costs are, of course, accounted for by the small amount of garbage consumed and the intermittency of operation.

The collection of ashes and rubbish during the year cost on the average 16.96 cents per cubic yard; 13,461 cubic yards of ashes and 29,479 cubic yards of rubbish having been collected. This cost per cubic yard was somewhat lower than for any year since 1906.

During the year 56 miles of asphalt, 210 miles of brick and 382 miles of macadam were cleaned at an average cost of \$5.57 per mile.

Compressed Gas Street Lighting

For some time past novel experiments in gas lighting have been conducted in various parts of Paris—notably upon the Boulevard Raspail—with the object of discovering a satisfactory substitute for the arc light; the source of light being an incandescent mantle, or group of mantles, heated by a burner supplied with gas under pressure.

It is well known that an incandescent mantle shows a marked increase in intensity as its temperature rises. But the temperature of the Bunsen burner depends chiefly upon the amount of air which the gas carries mixed with it to the burner tip. The ideal proportion would be 5.5 volumes of air to one volume of gas; but the pressure in the service mains (2-3 inches of water) does not give the gas sufficient velocity, as it enters the burner, to enable it to sweep along with it so great a proportion of air, and the mixture actually formed, consisting of from 2.5 to 3 volumes of air to one of gas, does not permit of complete combustion. In order at least to approximate the ideal mixture upon the combustion of which the maximum brilliancy depends, three methods suggest themselves: (1) Prepare in advance a mixture in the desired proportion; (2) compress the air so that it can be admitted to the burner in any desired proportions; (3) compress the gas, which can thus be made, as it escapes from the jet, to suck in a larger proportion of air. These several methods have been tried; the third is the one preferred by the Paris Société du Gaz for its installations along the Rue du Quatre-Septembre, in

the Place de l'Opéra, and finally—and most important of all—in the Boulevard Raspail. For the latter installation the gas delivered by the service main is compressed with the aid of two underground pumps driven by a 10-horsepower gas motor, and sent, under a pressure of 1.4 metres (56 inches) of water, into the three special pipes for the boulevard lights. The lamps are supported by 116 posts of the type usually employed for arc lights, and each consists of three burners and three mantles. Of these lamps 88 are of the Hefner 2,000-candle type and consume 1,100 litres (39 cubic feet) of gas per hour each; the other 28 consume twice as much gas and yield a light of 4,000 candle power.

Illumination by compressed gas is claimed to offer various important advantages over that by arc lights, the first of these being the cost. According to the figures given out by the Paris Société du Gaz, it is estimated that the cost of lighting—including the expense of compressing the gas, that of repairs, of replacing mantles and globes, but not including sinking fund charges—is 0.12 centime per Carcel hour, or about 0.03 mill per candle hour. By the use of compressed gas a saving of about 70 per cent. over arc lamps is claimed for equal illumination.

To this first advantage must be added another: the possibility of shutting off part of the light after a given hour—something which cannot be done as yet with the electric light. A comparison of the cost of lighting by compressed gas, with full intensity up to midnight and decreased intensity from midnight to daybreak, with that by arc lamps with full intensity all night, shows a saving of over 80 per cent. by the former. Finally, the problem of an automatic lighting system would appear to have been solved. Taking advantage of the notable difference of pressure in the mains at the time of lighting, at midnight, and at daybreak, a device has been put into service which opens the flow of gas to the burners at evening twilight and, after these are lit, extinguishes the tiny pilot light which burns all day. At about midnight two of the three main burners are extinguished; finally, at daybreak the pilot is again lit and the third burner extinguished—all automatically.

As a result of the tests on a large scale upon the Boulevard Raspail, the adoption of powerful incandescent lamps using compressed gas will doubtless be furthered in Paris, at least for the lighting of very wide and much frequented streets.

CONCRETE PIPE FORTY YEARS OLD

A DIFFERENCE of opinion seems to exist concerning a section of concrete pipe which was uncovered early this year in Chicago, a writer in a technical paper claiming that the pipe was in excellent condition, while others claim that its further use would be, and for some time has been, unsanitary. The pipe in question was a sewer which served a hotel known as the Transit House, which was burned last January, and the clearing away of the ruins uncovered the sewer. The pipes used in its construction were 16 inches inside diameter, with walls 2 inches thick, the lengths being 2½ feet long, with beveled joints. A gravel concrete



VIEW OF SEWER FROM ABOVE.

was used, presumably made with natural cement. As this served as a sewer connection for the hotel, it presumably carried nothing but fresh sewage.

The writer of the article in question stated that the concrete was found to be in good condition, some of the gravel stones breaking in two when a piece was broken out of the pipe for examination, the fracture showing a uniform color across the section. The only defect noticed by this writer was that the material in the invert was softer for the ⅛ inch of thickness lying next to the sewage than in the balance of the section.

Later this piece of sewer was examined by F. M. Fins-thwait, chief sewer pipe inspector of the city of Chicago, who stated that "although the bulk of the original material is still in place, it has apparently been for many years in a very disintegrated and unsanitary condition, carrying very little sewage and containing much deposited filth. The pipe * * * is now in such condition that both the inner and outer surfaces can be scratched off with the fingers so as to loosen the gravel. The entire section is saturated with and softened by sewage and all the pipes exposed are cracked longitudinally and across, allowing the sewage to soak into the surrounding ground.

A consulting engineer of Chicago, W. S. Shields, also examined this sewer connection. He found that all the sections exposed where cracked longitudinally along the top and that those from which the top was removed were found cracked along the bottom also, and he assumed that all the pipes were cracked in the bottom, as they were somewhat flattened. Nearly all the sections were cracked across in several places and many were cracked along the side near the top of the invert. The crack along the top can be seen in the photographs shown herewith. One section of pipe had been patched with a large piece of tile pipe cemented in place. The grade is very flat, which probably accounts for the fact that the pipe was about half full of deposit, which, of course, was in no way discreditable to the pipe as such. A heavy coat of sediment was found deposited on the interior of the lower half of the pipe, such as would be formed by sewage scum or grease, and upon removing this coating some of the cement and sand came away with it, leaving a rough surface. "The pipe was easily torn apart and there was no difficulty in removing pieces of broken pipe with the hand particularly in the lower half



SEWER AND OLD BRICK MASONRY.

of the sewer, where the concrete was brittle and could be broken off in pieces by pressing against it with the foot. The pieces broken from the sewer were brittle, and it was not difficult to pick from the surface of the fresh fractures." Mr. Shields believed that the sewer might last for a number of years if undisturbed, but that its sanitary condition was very poor, owing to the flat grade and deposits. He believed, however, that if the grade had been sufficient to have scoured off this coating it would have loosened the inner surface of the concrete and left this rough and unsanitary.

NEPONSET RIVER IMPROVEMENT

THE Massachusetts State Board of Health was last year directed and authorized by the State Legislature to spend \$150,000 in improving the Neponset River, a stream which rises in the town of Foxboro and flows through six towns and three sections of the city of Boston before discharging into Dorchester Bay. The primary object of the improvement is the remedying of the unsanitary and unhealthful conditions which have long existed, owing to the flooding of about 4,000 acres of land in five of the towns and a portion of the city of Boston during extended periods of each year. This flooding has been especially objectionable, because of the discharge into the river of many classes of wastes from paper mills, tanneries and other mills, which have not only driven out the fish, but, being deposited on the overflowed meadows, have given rise to very objectionable odors.

The Board of Health has already prevented the discharge of sewage into the stream, and most of the mills, tanneries and factories which discharge their waste waters into it have been required to install filter beds and disposal plants, and it is intended to eliminate all such pollution from the stream by the time the contemplated rectification and deepening of the main channel have been completed. The straightening of the channel will reduce the length which is to be treated from 12.906 miles to 10.317 miles. The channel will be excavated to uniform bottom widths and slopes, being given a sufficient capacity at all points to discharge the ordinary maximum run off of the tributary water shed, but not necessarily that of extreme freshet flows such as have occurred at intervals in the past, for to entirely prevent flooding during these occasional intervals would involve a cost for excavation alone greater than the appropriation and one which probably would not be justified.

The actual work of construction is expected to start this year, as soon as the flood conditions on the meadows will permit. This work involves the removal of approximately 180,000 cubic yards of mud and soft material, 150,000 cubic yards of gravel and hard material, and about 1,000 yards of ledge rock.

One-half of the total cost of the work is to be distributed among the towns and cities which are benefited in proportion to the benefit to each. The designing and construction are under the supervision of X. H. Goodnough, chief engineer of the State Board of Health, and Edmund M. Blake, engineer-in-charge.

ARCADED SIDEWALKS

A NOVEL suggestion from Venice, California, is the use of arcaded sidewalks for the business streets. As the photograph shows, these add to the beauty of the street when the architecture conforms to the style rendered necessary by the arches. In this case the inspiration is direct from Italy, but the California Missions or the German Renaissance



ARCADED SIDEWALKS, VENICE, CAL.

would afford equally good models for this arcaded sidewalk plan. Arcades similar in plan, but less pretentious architecturally, may be found in old English cities also. The advantages are various. The protection for the shoppers from sun and storm makes the arcades as busy in bad weather as in fine, to the profit of the merchant. The property owner secures additional floor space above the ground floor, and this should make the plan of interest to builders on a limited area. The beauty of the design is undeniable.

CATCHBASINS IN BANGOR

INFORMATION concerning the use of catchbasins in Bangor, Maine, is furnished us by P. H. Coombs, city engineer of that city, whose letter is given below. Similar information from other cities was given in our issue of May 2. This and the previous communications were in response to an inquiry as to the experiences of cities with inlets having and those not having catchbasins attached.

The sewerage system of the city of Bangor began in a limited way about 1850. The first surface water inlets were by direct openings leading to the main sewers, called chimneys. As the building of the system progressed these direct openings were continued on the new work for a certain time. Bangor is a hilly city with grades ranging generally from 5 to 10 or 12 per cent. In the course of time it was found that sand and other coarse material were admitted to the main sewers through these direct inlets. The sewers first began to clog on the steep grades, and the pressure in the sewers became so great that the sewers broke and the water was forced up through the surface of the streets and did considerable damage to the street surface and gutters before the repairs and necessary cleaning could be accomplished. This form of damage was not confined to steep grades alone; some of the flatter grades were finally affected. In one case coming readily to mind, a sewer 1,100 feet long became clogged by the coarse material of the street and gutter washings admitted through the chimneys, so that it was entirely filled and had to be dug out, a new survey made and a new sewer was built in its place on an improved grade, and trap catchbasins built to replace the former chimney openings. This particular work was done about 30 years ago, but no further trouble has been experienced since the catchbasins were trapped.

This city expended a large amount of money in digging up streets and cleaning clogged sewers before adopting trap catchbasins.

The standard catchbasin adopted by this city about 40 years ago is 10 feet deep and 5 feet in diameter. The trap and connections are located about five or six feet above the bottom, the exact elevation being controlled largely by the elevation of the sewer in the street. During these 40 years no trouble has been experienced from gravel and street washings clogging the main sewer.

Catchbasins are cleaned several times during the season, some requiring more frequent cleaning than others owing to the location. The cost for the entire season necessarily varies somewhat, but is from \$2,500 to \$3,000 per year, and the number of catchbasins is about 1,000.

The writer has been city engineer for about 25 years of the period above referred to, and has had a personal knowledge of the facts given for the entire period named. The sewer system in this city is very well ventilated with perforated manhole ventilators. The system is what is known as a combined system and no permanent trouble has ever been experienced with bad odors from the catchbasins. Some catchbasins located where they receive refuse—which should never be admitted to a street catchbasin—have to receive special attention.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance

ROADS AND PAVEMENTS

Pavement of Cement Has Stood Its Test

Burlington, Wis.—That cement for street paving is a decided success here has been demonstrated by the city, and the streets paved with cement are now among the finest in the city. Considerable opposition was made to the laying of the cement paving here, it being contended that the pavement would not stand the wear. However, three blocks on Pine street, three on Chestnut, two on Jeperson and two on lower Pine street were paved with this material last year and have withstood the severe winter weather, showing up this spring without a crack or blemish of any kind.

Road Paving Policy Made for East Orange

East Orange, N. J.—The road committee of the East Orange City Council has decided on a policy which it expects will result in the repavement of the main thoroughfare of the city within the next ten years. It is considered that about ten miles of the city streets should be given some sort of surface that has a concrete base, the base being considered more important than the surface. The policy will be to pave approximately a mile of such streets each year and add the cost to the budget. Harrison street, for about two-thirds of a mile south of Main street, will be the first one to receive attention and it is proposed to appropriate enough this year to pay the cost. That will be, it is said, between \$25,000 and \$30,000. Other streets to be so treated will be William street, Grove street, Arlington avenue and other thoroughfares that are now traveled to a great extent by automobiles or heavy trucks. It is deemed that the repaving will have a tendency to concentrate such traffic and relieve the macadam roads from wear.

Galveston Causeway Opened

Galveston, Tex.—The Galveston causeway, bridging the two miles of Galveston Bay, connecting the city with the mainland, which consumed more than two years in building and cost \$2,000,000, was dedicated and opened with appropriate ceremonies on May 25. Governor Oscar Colquitt officiated at the formal dedication surrounded by officers of his staff and guests and visitors from Texas and other States, as well as from foreign countries. More than 1,500 automobiles and 7,500 people formed in line in the parade and traversed the bridge. The structure carries steam railroad tracks, trolley tracks and a highway.

Street Names on Curbing

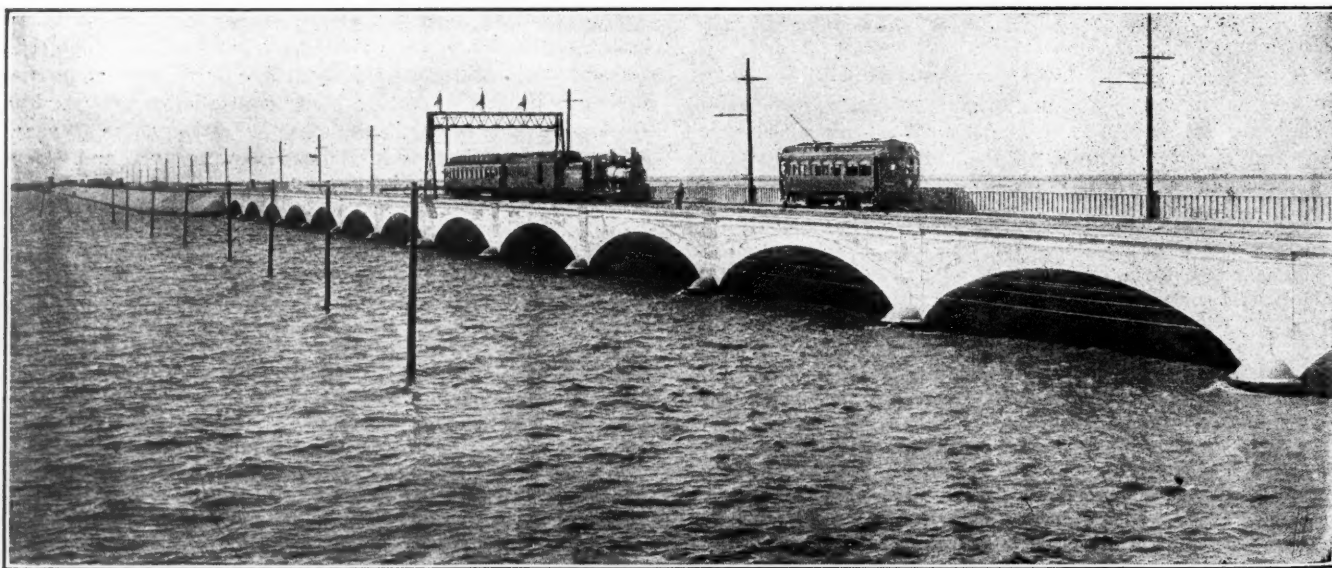
Chester, Pa.—The Dickerson Paving Company has inaugurated an innovation in the laying of the cement pavement about the Swan Hotel, at Fourth and Market streets, by inscribing the names of Market and Fourth streets with indented letters along the smooth surface of the curbing. This will be done at other street intersections where the Dickerson company makes the sidewalk improvement.

Use New Roads Too Soon

Pottsville, Pa.—From the arraignment of the members of the Mt. Carbon Borough Council, because of the deplorable highway maintained by them, it has developed that automobiles and teams have done much to damage new roads in course of construction in various parts of the county. It has been represented to court that as many as 2,500 teams and automobiles per day passed over the Schuylkill Haven turnpike while it was in course of construction, and that it is to this fact that the State authorities ascribe the failure of the work to show lasting quality. Court will take action to prevent this in the future.

To Test Sidewalk Repair Ordinance

Springfield, Ill.—A test case of the city ordinance which provides that the proper authorities are empowered to compel all property owners to provide sidewalks in front of their property will be made within a few days. The sidewalk and engineering department of the city will start proceedings. The last city budget called for an appropriation of \$1,500 to be used by the department in placing sidewalks in the city and with this fund to work on active operations will be started immediately. In past years the sidewalk department has not been supplied with funds and all they could do was to order the property owners to construct the sidewalks. If the inspector of the department finds that a sidewalk should be replaced, the property owner is to be given thirty days' notice. Should he fail to comply with the order, the city is at liberty to advertise for bids for the work from the various contractors of the city, and the work is given to the contractor furnishing the lowest bid. The contractor is then paid out of the money provided for in the budget, and the property owner is assessed the amount plus interest in his annual taxes. Should he fail or object to pay the money when the taxes are due, the city is at liberty to seize the property and after a sale collect sufficient money to pay the contractor.



RECENTLY COMPLETED CAUSEWAY CONNECTING GALVESTON WITH MAIN LAND.

New Paving Law Will Promote Work

Phoenix, Ariz.—News that the House and Senate had passed the paving bill was received with much satisfaction by members of the City Council of Phoenix, and others interested in the extension of this particular line of development. Under the new law, which is now before the Governor for signature, upon petition of a majority of the property holders in any given paving district, council may order the paving constructed, and the remaining property owners will be bound by the action, the cost becoming a lien against the property and collected as taxes are by law collected. Or in cases where the council deems the work of great public importance and upon a unanimous vote of the governing body the work may be ordered even though a majority of the property holders do not so petition. The act was drawn by Judge J. H. Kibbey, of the firm of Kibbey, Bennett & Bennett, and is based upon the Vrooman act, under which California cities operate, and which is found to work most successfully. Under its provisions payments for the paving may be extended over a term of years so that the burden may fall lightly upon those not in a position to part with a large lump sum.

To Try New Paving Blocks

New York, N. Y.—Borough President McAneny has informed the Merchants' Association that the city will act favorably on its request that Canal street, west of Broadway, be repaved with a new style of granite blocks as soon as the underground work there is completed. Parts of the street are now torn up for the purpose of laying subway mains and pipes, and this condition has led merchants along the street to ask that the repaving be undertaken at once to avoid the necessity of twice disturbing traffic. The association has succeeded in introducing at the same time a new kind of pavement on foundations constructed upon specifications to secure great solidity and permanence. It is the intention of the city to repave the street with small, close-cut granite blocks, practically of the Liverpool type, which fit very closely together. While they give a good foothold for horses, they are smooth enough to reduce the noise of traffic. With the kind of foundation that is proposed, it is expected that the pavement will be one of great lasting quality as well. The Merchants' Association goes so far as to say in its last bulletin that it expects the new Canal street pavement to fix a new standard of pavement in this city.

Views Differ About Newark Pike's Value

Jersey City, N. J.—That the Newark turnpike could be made into a thoroughfare that would withstand the heaviest travel and be a durable road for many years, was the opinion expressed by Walter F. Whittemore. Mr. Whittemore made an examination of the pike at the instance of the grand jury. He testified as to the award of the contracts for both that road and the Belleville turnpike. Mr. Whittemore said that such a road as he proposed could be built for approximately \$105,000, or at the rate of \$35,000 a mile. This would mean, he said, an expense of \$3 a square yard. "In the first place," said Mr. Whittemore, "I would put down a foundation of cracked stone and cement on the present road. This I would make perhaps a foot thick. Then would come a layer of sand, and on this I would put granite or trap rock blocks. Such a road, if properly built, would last for years, and at the same time it would be a fairly smooth roadway. The travel on the Newark turnpike is so heavy that any other kind of road, in my mind, would soon break up. You can see the result in the amiestite surface that has been down only a short time, in many places it is gone entirely." Sheriff Nicholas P. Wedin says that the present road of amiestite has been a good road, and has answered the purposes for which it was laid. "To make a permanent road of the Newark turnpike," said the sheriff, "would cost not less than \$300,000. The roadway ought to be widened considerably and there ought to be a 'shoulder' on each side to prevent spreading. The contractor on the Newark turnpike, William J. Coughlin, built a good road. No one can honestly dispute that. After it was built a large amount of travel was diverted from the Belleville turnpike and the plank road to the Newark turnpike. Considering that the roadway is only eighteen feet wide and that there is a large amount of travel on it, it has stood up very well. I cannot see where the contractor can come in for any criticism."

Miles of Concrete Walks

Greenville, Tex.—Several miles of new concrete sidewalks have been laid in this city during the past month or two, about \$10,000 having been expended recently by the City Council and citizens of Greenville for concrete sidewalks. The vitriolithic pavement has been completed on North Johnson street. This street has been paved with this kind of material from the court house square to Church street. This completes all the street paving contracts that have been awarded in this city.

Building New Highway in James City County

Williamsburg, Va.—The State Highway Department is putting its machinery in motion to begin work on a new highway from Norge to Croaker, in James City, the line to be from three to five miles long, and another in York County, on the old highway in the vicinity of "Black Swamp." These highways will be built by contract during the summer.

Plan to Build Road in Two Days

Pierre, S. D.—The citizens' committee from the Watertown Commercial Club, headed by W. H. Stokes, a prominent mill owner, have perfected a plan whereby the Meridian road is to be built complete in every detail across Codington County in two days. Last fall State Engineer Lea located the route across the county, and this spring a careful survey with location of grade stakes will be completed. The Codington County commissioners have offered to cooperate by completing the construction of proper bridges along the line prior to the day. It is estimated that 1,500 available men and 35 teams can be secured from Watertown alone. Special assistance is requested of the militia, the boy scouts, county commissioners, township road officers, the State engineer, machinery dealers and the women. The marshalling of the forces is to be under the general direction of Adjutant General Englesby. A committee of five is to be appointed for each mile of road, whose business it shall be to see that all details are attended to. An underforeman will be selected for each six miles. The men, teams and implements will be apportioned and the first day will be devoted to getting the roadway in shape. The women are asked to have lunches for all at midday and evening. On the morning of the second day the road will be carefully rolled with steam rollers, following which will be the grand finale—a parade led by the engineers in autos to end with a celebration at Watertown.

Want Bituminous Top on Concrete Pavement

Huntington, Ind.—That there are no plain concrete pavements in Ann Arbor, Mich., contrary to the impression gained here by some, is the substance of a letter received by City Civil Engineer H. H. Wagoner, of Huntington, from Engineer Groves, of Ann Arbor. The letter to Engineer Wagoner follows:

"Dear Sir—In reply to yours of May 21, I beg to say that we have no plain concrete pavements in this city. All these streets have a thin bituminous top."

City Engineer Wagoner explains that the form of pavement referred to by the city engineer of Ann Arbor is exactly the same as the Dolarway pavement. Figures given show that the pavement in Ann Arbor cost about \$1.15 a square yard, including excavations and curbing. Engineer Wagoner says that Dolarway can be put down for about that and that the bid of \$1.09 a square yard submitted by the Dolarway company here did not include excavating and several other items. He asserts that Dolarway can be laid for practically \$1.15 a square yard if excavation and other items, not included, are specified. Engineer Wagoner declares emphatically that he is not in favor of the plain concrete pavement, as in his opinion from what he has learned by investigation, it has not proven an entire success. He points out that concrete will absorb water and will break down at the expansion joints. "Let the people have a plain concrete pavement if they want it, but if such are laid down, I do not want to be held responsible should they prove a failure," said Engineer Wagoner. Residents of Polk street have signed a petition asking for a plain concrete pavement. Engineer Wagoner says Dolarway has a concrete base with a thin coating of bitumen and in his opinion is one of the best paving materials now in use.

SEWERAGE AND SANITATION

Much Filth in Water.

Columbus, Ind.—Local people have been sickened by the filth that has been taken from the water works, which is being cleaned. The water is pumped from the river into a well through a thirty-six-inch main, and is then drawn from the well into the city mains. Nearly a car load of mud, slime, filth, sand, bullfrogs, turtles, eels, fish, etc., have been taken from the well and dumped over the breakwater near the water works in the river. William Stillinger, an engineer at the water works, has the job of crawling in the main that runs under the river to the old infiltration gallery. The pumps at the water works keep the water in this main at a fixed depth. Should they stop Stillinger would be drowned. J. C. Rush, chief engineer of the water works, says fully three car loads of filth and mud will be taken from the well before the work is finished.

Improvements in Spencer

Spencer, N. C.—A force of men has been set to work to build ten thousand dollars' worth of extensions to the sewer system in Spencer. The enlargement of the sewer system, the sinking of a new artesian well now under way, the building of a new electric plant, a new roundhouse, a new oil house, a new coal-chute, two new repair shops by the Southern Railway Company in Spencer this year means much for the town. In addition to these improvements which it is said will cost about \$200,000, the Southern is doing a large amount of grading on its yards in Spencer with a view of improving its freight and passenger service.

Hagerstown Paying Cent for Ten Flies

Hagerstown, Md.—In order to wage a relentless war upon the fly the Civic League of Hagerstown will conduct a fly-killing campaign for a week and will pay for dead flies brought to headquarters at the rate of one cent for 10. Dead flies will be received at the public library, where the league has established headquarters, each day between 4 and 5 o'clock, and preparations have been made to take them in any quantity. Much good is expected to follow the plan of paying for all the flies killed and young people, especially boys and girls, are expected to become active in the work of exterminating the dangerous pest.

Arrange for Survey of Lake Waters

Duluth, Minn.—Definite plans for a survey of the water supply conditions in Duluth were made when Dr. H. M. Bracken, secretary of the State Board of Health, and Dr. Mullin came to Duluth for a conference with members of the Board of Water and Light Commissioners. The survey was suggested at a meeting of the board some weeks ago. The analyses of the water, obtained monthly by the board, show that the supply is now in good condition, but there is some question of the effect of continued discharging of sewage into the lake. Members of the board are anxious to satisfy themselves as to the probabilities of contamination, and the survey is intended to determine just what the probabilities are. The matter was referred to Commissioner George D. Swift for correspondence with competent authorities. Mr. Swift reported at the meeting of the board this week that he had had correspondence with Dr. Bracken, and that the secretary of the State Board of Health and Dr. Mellin will be here during the coming week for a conference. Members of the board expect that Dr. Mullin, who is on the staff of the State Board of Health, will be put in charge of the survey. Arrangements have been made between the city health department and the water and light board, whereby the monthly analysis of the water supply, heretofore arranged by the water and light board, will hereafter be made under the direction of the health department. Dr. E. W. Fahey, health commissioner, has made arrangements with the State Board of Health whereby an official of that board will come to Duluth monthly, select his own samples and make the analysis, reporting to the health board and the water and light department. The health department has not been officially connected with the analysis arrangement heretofore, the matter being entirely in the hands of the water and light board. The analyses have been made by the bacteriological laboratory of the University of Wisconsin, from sample sent by the water and light department.

Food Inspectors Make Reports

San Antonio, Tex.—At a regular meeting of the Health Board the report of the various inspectors were read and approved. Theodore Anderson, fruit and vegetable inspector, reported inspection of four cars of bananas, four cars of oranges, three cars of mixed fruits, 500 crates of strawberries, 400 crates of blackberries, and had condemned seven crates of strawberries and nine crates of celery from California. Assistant Market Master William Herpel reported inspection at the Alamo Dressed Beef Company of 101 head of steers, 102 head of calves, twenty-six hogs and forty-five head of mutton, and he had condemned four beef livers. In inspecting 150 restaurants G. C. Carvajal reported that he had found but one filthy, and in the various restaurants had condemned but three pounds of fish and two pounds of liver. D. Q. B. Lee, milk inspector, reported analyzing eighty-seven samples of milk and finding seventy-seven up to the standard. The milk dealers whose samples were found bad will be given a warning and if the warning is not heeded they will be prosecuted.

Pig Pens Barred from City

Vidalia, Ga.—Additional legislation has been made by the Mayor and council of this place, which practically outlaws the hog in the corporate limits. Some time since it was made an offense for the hogs to roam on the city streets which was thought to be slightly radical by some of the owners; however, this proved to be only a starter, as the last session decided that it will be against the city laws for even a pen to be kept within the limit of the city's authority. Vidalia has good water and good drainage and with proper precaution it can be kept the healthiest place in the section. It is with this in mind that the council takes the new radical step.

Civic League Crusade to Exterminate Fly

Williamsburg, Va.—The Williamsburg Civic League have started a housefly campaign in a meeting at the court house. About twenty-five boys have started slaying the little pests and are encouraged in the work by being paid at the rate of eighty cents a quart. As a further inducement, a prize of \$5 is offered the warrior killing the most flies and \$2.50 to the one with the next highest record. The small boy is finding much amusement with his "swatter" and appears to be doing the work effectively.

Free Theatre Tickets for Fly Killers

Logansport, Ind.—The "swat the fly" crusade in Logansport has reached such a stage that free admission is offered by the moving picture theatres to every person who turns in twenty dead flies at the box office. There are four different moving picture theatres in the city and it is estimated that about a peck of dead flies have been received by them. Figuring on the basis that one fly killed now means a million less in the summer Logansport ought to be a "flyless town" in July and August.

Will War on Mosquitoes

Philadelphia, Pa.—An effort to interest the public in the municipal war on mosquitoes is being made by Director Cooke, of the Department of Public Works, and Director Neff, of the Department of Health and Charities, and a general appeal is being sent out to have the co-operation of the residents in the elimination of mosquito-breeding spots. A limited appropriation is available in both departments for the drainage of stagnant pools, the filling of mud holes, and the use of oil where the water cannot be eliminated. Discussing the plan of crusade Director Neff had this to say: Comprehensive plans are being formulated by the Department of Public Works, in connection with the Bureau of Health, for the ultimate elimination of mosquitoes. The engineering problems can hardly be solved in time to make these plans fully effective for the coming summer. Much of the nuisance, however, can be eliminated if citizens will fully co-operate and take some simple precautions, as there is nothing miraculous about mosquitoes. It is not too much to say that if every citizen ceased to help on the breeding of mosquitoes by affording them vessels of stagnant water and little pools in the pavement of their yard or garden, as a breeding ground, this alone would reduce the mosquito pest in Philadelphia during the summertime in the most amazing way, even if nothing were done on a large scale.

WATER SUPPLY

Improving Water Works System

Wichita, Falls, Tex.—Improvements costing about \$60,000 are now under construction at the water plant in this city. They include a settling basin of reinforced concrete, 230 feet long, 90 feet wide and 6 feet deep, and a new pump with a capacity of 2,000,000 gallons daily.

Houston Must Make New Ordinance

Houston, Tex.—It is likely the Houston city government must adopt a new ordinance regulating charges to takers of the municipal water supply. That is the opinion of City Attorney Niday, who has been in Austin in the Supreme Court looking into the disposition of the case recently brought from the El Paso Court of Appeals, the latter tribunal affirming judgment against Houston in favor of a citizen for \$130. The highest court dismissed the application for writ of error for lack of jurisdiction and Mr. Niday's mission was to ascertain whether it were possible to file motion for rehearing. He said there can be no rehearing of the case.

Planning to Conserve Water Supply

Sacramento, Cal.—The State Conservation Commission has drafted a comprehensive water commission act, which it is proposed to submit to the Legislature at its next regular session, after the text has been discussed at public hearings, which began May 28. The proposed act is a complete body of law covering the subject of the State waters and applies specifically to riparian rights, appropriations of streams and power and irrigation and to underground waters. It specifies beneficial use as a precedent to the establishment of rights and provides for an annual fee to be paid to the State on horsepower developed and miners' inches used in irrigation.

Lyons Water Works Company Gets Busy

Lyons, N. Y.—Pure water in adequate quantities has been discovered by the Lyons Water Works Company within reach of its pumping plant. These wells will produce, the experts claim, 1,000,000 gallons of pure drinking water every 24 hours. The pumps, which were badly worn from pumping sand and refuse, have been rebuilt by Engineer Charles Stevens, a Rochester expert. In addition to this, Engineers W. S. Westfall, John F. Skinner and C. E. Newell, all of Rochester, have devised a plan whereby the mud and sediment now in the mains throughout the village can be removed. This will remove the last cause for complaint. These tests and repairs have cost the company upwards of \$1,500. Lyons people have been discussing municipal ownership. Engineers in the employ of the village are now at work trying to locate a proper water supply and will shortly present facts and figures for a municipal plant, and will also state what, in their opinion, the present corporation-owned plant is worth.

Franklin City Water Impure

Franklin, Pa.—The Franklin city water is contaminated and absolutely unfit for use. Of this the Board of Health is convinced. The board has warned the people to boil all water used for drinking and cooking purposes and if this warning is heeded we believe that the typhoid in the city will disappear. The members of the health board are making a thorough investigation and a meeting will be called to go over the situation and endeavor to make plans to prevent a re-occurrence of the present outbreak. During the last 10 days 10 cases of typhoid fever were reported in Franklin, an average of one per day. This proves conclusively to members of the Board of Health that the water is contaminated. Arrangements are being made to have samples of water analyzed aside from the regular weekly analysis made at the Pittsburgh laboratory for the Board of Water Commissioners. It is likely that this special analysis will be made at the University of Michigan, the University of Pennsylvania or Johns Hopkins University. A well-known citizen of Franklin had 24 samples of water taken from various buildings around town analyzed. Of these five samples were shown to be contaminated. He turned over this information to the Board of Health.

Electrical Pumps Will Increase Water Supply

Cleburne, Tex.—George Grupe, manager and superintendent of the Cleburne water works, has just placed an

order for pumps to be operated by electricity for two of the wells in Cleburne, which will increase the capacity of these wells over 100,000 gallons per day. Specifications are out and bids will be opened in a few days for the purchase of another 1,200-foot air compressor. Besides these improvements another deep well is to be sunk to the Trinity sands, with a diameter of eight inches. There are also five miles of six and four-inch mains to be put in and thirty-three fire hydrants. These improvements will materially lower the insurance rate in Cleburne.

Meters in Factory Plants Increase Water Revenues

North Tonawanda, N. Y.—During the ten days of the collection of water rentals City Treasurer Henry Smoyer received \$14,446 from water consumers for the first half of the fiscal year. The collection is about \$2,500 more than was made last year. The increase in revenue is due to the installation of water meters in factory plants and from the rigid water inspection made a few months ago. There are yet 110 water consumers who have failed to pay the semi-annual rental this month. The water system is in excellent financial condition, having a surplus of about \$18,000.

Wants Automatic Drinking Fountains

Schenectady, N. Y.—Superintendent of the Water Bureau Fred Bentley is dissatisfied with most of the sanitary drinking fountains now in the public schools. Not because the fountains are not sanitary enough, but because, he says, they are wasteful. The objectionable fountains, most of which were installed last year, are of the continuous bubbling type and the superintendent asserts that this continuous bubbling is not necessary as a sanitary feature. He is of the opinion that shut-off fountains, with the self-washing features of the ever-bubbling type, should be installed. There are such fountains in the high school building, but they are of such construction that the small children of the grade schools would not be able to use them. What he is looking for is an automatic shut-off fountain. He has in mind an apparatus so arranged that a child would have to stand upon a low platform to drink from it. The act of stepping up on the platform would cause the water to flow or bubble up from the nozzle, while stepping down again would shut off the water. This, the superintendent believes, would maintain the sanitation in tact, and at the same time stop the waste of water.

Urges Separate System for Drinking Supply

Cleveland, O.—Duplication of Cleveland's 700 miles of water pipes at a cost of \$3,500,000 or \$4,000,000 and the connection of this new system with a water reservation about twenty miles from the city is the scheme that City Building Inspector Allen is preparing to recommend to Mayor Baker as a solution of the pure drinking water problem. In Allen's opinion any attempt on the part of the city to establish a water filtration plant equipped to care for the 70,000,000 gallons of water pumped daily through the present pipe system for all purposes would result in a huge and unnecessary drain on the city's funds. It is his belief that there should be a separate water system designed to care for the drinking water alone. This water should be filtered, and cooled artificially if necessary, to care for the city's needs, in Allen's opinion. Allen is now gathering data from other cities and in his study, which he will submit to the Mayor, he will show a comparison of the cost of purifying the large volumes of water that are handled daily for all purposes in Cleveland and of treating the comparatively small amount that is actually consumed each day by the 600,000 residents of Cleveland. Figures given by Supt. Schulz, of the Water Department, show that the actual amount of water drunk in Cleveland a day is about one-half per cent. of the total daily pumpage, or about 300,000 gallons. Supt. Schulz estimates that to duplicate the present system, even if smaller pipes were to be used, would cost between \$3,000,000 and \$4,000,000, or about \$5,000 a mile.

A Fine Water System

Russellville, Ark.—The Russellville Water & Light Company has completed its water plant, and the test of the pressure was made showing sixty-five pounds pressure from the reservoir. The water comes from the Illinois river, a clear mountain stream, and will be equal to any water in the State.

STREET LIGHTING AND POWER

Columbus Secures Lower Light Rate

Columbus, Miss.—After several months of contention and proposition and counter proposition between the City Council and Mayor and the officials of the Columbus Railway, Light & Power Co., only source of light and gas in this city, a satisfactory agreement, which is said to be suitable to all parties concerned, and will also be pleasing to the general public, has been reached. The maximum domestic rate has been reduced from 17 cents to 12 cents per K. W., and the patrons of electric service will, it is estimated, get a reduction of about 20 per cent., taking the whole graduated scale into consideration. The street lights will in the future cost the city \$80 per annum, while the cost has been \$90 per annum for each light. This contract, which has been or will be within the next few days, drawn and signed by both parties, is for a period of five years. It has been figured that during this period the city of Columbus will save in street lighting about \$5,000, while the general public will save about \$14,000 on their bills.

Better Construction of Gas Mains Needed

Dallas, Tex.—Following up suggestions made in the reports of City Electrician Leon M. Taylor and City Plumbing Inspector Jacob Boll, Mayor Holland said that he will ask for a conference between the City Engineer, the City Water Works Inspector and possibly the foreman or superintendent of the Dallas Gas Company looking to better enforcement of the city's ordinances applying to installation of gas pipes and gas appliances. Both Mr. Boll and Mr. Taylor stressed in their reports necessity for close supervision of all such work and also recommended more stringent rules. Mayor Holland said that he and Commissioner Nelms have received complaints about gas pipes installed with cement or rubber connections. He was not informed as to how well the cement will prevent leaks of the gas and he desires to obtain the opinions of experts as to this feature. The rubber, it is claimed, rots out and causes leakages of gas.

FIRE AND POLICE

Plans National Police Body

San Francisco, Cal.—Plans for a National Bureau of Police, which would act as a clearing house for information as to the movements of criminals, have been evolved by Chief of Police D. A. White, who has been on a visit to the police departments of several large cities of the country. Chief White said his plan had been indorsed by the police heads of Washington, New York and Chicago.

New Police Device Installed

Fort Worth, Tex.—The new police Gamewell exchange desk has been installed in the office of the sergeant and it is expected the alarm system will be completed and ready for operation in thirty days. Chief Renfro has appointed George Kreybuhnn and Henry Bishop, both of the fire department, to take charge of the exchange. An operator will be on hand at all times to answer calls.

Prevention Bureau Reduced Fires 20 Per Cent.

New York, N. Y.—The Executive Committee of the Master Builders' Association of New York City, through its attorney, Frank M. Patterson, has written to Mayor Gaynor commending the work done by the new Fire Prevention Bureau. "Since October 15, 1911," says Mr. Patterson, "the number of fires has decreased about 20 per cent., which means a considerable saving to the insurance companies, and which in turn should eventually mean lower rates of insurance to property owners. It is estimated by the Master Builders' Association, which has made a thorough examination of this subject, that within a few years' time this bureau should be able to cut down the number of fires at least 40 per cent. Thus far 762 buildings have been equipped with fire escapes, and alterations to stairways and exits in compliance with provisions of the new law have been made in 327 buildings. Fire appliances have been installed in 436 buildings. The owners of 973 buildings have been compelled to remove rubbish and other inflammable material from their buildings."

Fire Fighters Powerless

Ridgely, Tenn.—Fire swept the business section the morning of May 23 burning fourteen mercantile houses and destroying property valued at more than \$50,000. The fire gained such headway before being discovered that the local fire-fighting apparatus could do nothing, and as no apparatus could be obtained from nearby cities the fire fighters bent their efforts to prevent spread of the blaze.

Appoint Woman on Police Force

North Yakima, Wash.—Mrs. Myrtle D. Roberts, former secretary of the State Federation of Women's Christian Temperance Unions, has taken up her duties as North Yakima's first police matron, with especial jurisdiction over dance halls and young boys and girls on the streets. The decision to name a matron was brought about by a new interpretation of the functions of such an official. It was argued at first that there was no place for a matron at the city jail and no need for one, as women are rarely incarcerated there. The duties which will be assigned to Mrs. Roberts, however, will not take her to the police station at all. She will work from 4 o'clock in the afternoon to 11 o'clock at night and will wear a plain tailored blue suit with her police star under her lapel.

Wireless Telephone for Russian Police

Warsaw, O.—Engineer M. Keller, of this city, has just patented and is said to have sold to the Russian police a system of wireless telephones whereby policemen on duty in the town can communicate with their stations without leaving their posts. The policeman carries the apparatus in his pocket and hangs it onto the wall of the nearest house when wanted. He then presses a button, which gives the signal at the nearest station. The voice is very distinct, and trials have shown the best possible results. Mr. Keller claims that through his invention the bandits which infest Russian cities can be stamped out.

Motor Police Patrol Ready

Boston, Mass.—Boston's first automobile police patrol has been purchased and is expected to go into commission at the West Roxbury sub-station of division 13 within a week or so. It is a 60 horsepower White car, purchased by the department through Manager J. S. Hathaway, of the local branch. The West Roxbury sub-station has the longest wagon runs in the city. Quite frequently it has been necessary to carry an injured man from the boulevard near the Dedham line to the City Hospital, a distance of about seven miles, and a horse-drawn wagon can seldom cover the distance in less than an hour. Capt. Joseph Harri-man, of the division, and Lieut. Henry Hazlett, who is in command of the sub-station, are enthusiastic over the saving of time which will be made by the motor patrol. Several members of the department are receiving instruction in its operation, while the garage for its accommodation is nearly completed. The car is fitted for use either as a patrol in which unruly persons or criminals can be taken to the station house, or as an ambulance, being fitted with a stretcher and simple first aid remedies. Supt. Pierce has watched the tests of the car, while the entire personnel of the department is awaiting its first run with interest.

34 Fire Boxes Are Installed

Fort Worth, Tex.—The work of installing the new fire and police alarm system for the city of Fort Worth is so far advanced that within 30 days, is the expectation, the system will be perfected for general use. The work of connecting the new police desk with the boxes on the white way lamp posts is now being done. The police boxes are of blue color, affixed to the lamp posts. At night the posts are marked with a broad blue colored band around the top light of the white way lights. The fire alarm boxes are marked with red, both as to the boxes and the light globe band. There are to be 72 of the fire alarm boxes, and to date 34 have been installed. All of the wires for the system run in underground conduits. The work is being done under the superintendency of Selwyn Smith, City Superintendent of Fire and Police Alarms. Within the next sixty days 25 additional boxes will be installed. The blue light at night and a gong during the daylight hours will call the attention of the patrolman to the police alarm boxes, so the patrolman can be summoned from the central office any time of the day or night. Or he can communicate with central from his beat.

AUTO APPARATUS NOTES

Altoona Officials Investigate Hill-Climbing Ability of Motors—Ventnor Test Claimed to Develop Highest Pumping Record

Pueblo, Colo.—The new motor driven fire engine, the third piece of auto fire apparatus to be purchased by the city of Pueblo, has been shipped from the factory of the Victor Fire Engine Company, according to unofficial information furnished the commissioners. The news came from a local railroad office which has the routing of the big car and was to the effect that it should reach Pueblo within one week from the date of shipment from Buffalo. In connection with the same, Commissioner T. D. Donnelly presented a resolution asking that T. J. Canada, engineer of the Rocky Mountain Underwriters, be invited to be in Pueblo for the official tests of the new apparatus, which are to be made immediately after its arrival. The new car has a rated horsepower of 101, a running speed of 70 miles per hour and a pumping capacity of 700 gallons per minute.

Altoona, Pa.—A delegation of members of councils visited Pittsburgh and Wilkesburg recently, where they witnessed a demonstration of the working of the Knox auto truck under every condition. The party included L. Z. Replogie, A. B. Cole, Ira J. Shelley, Oscar B. Irvin, S. F. Crilley, Morris Henderson, G. A. McKendrick, S. C. Bowen, J. E. McAleer and J. L. Parks. The party was piloted about by Harry Silverman, of Pittsburgh, agent for the Knox company in this section, who met them at the Union station with two autos and a run was made to Herron Hill, in the East End. This machine is located in a hilly district of Pittsburgh, and since being installed has responded to 36 alarms, and has never cost the city a penny for upkeep. The car travels grades that are as steep as any in Altoona and has negotiated every hill without trouble. The committee was next taken to Wilkesburg, where a car has been in service since last December. The fire house is located half way up a hill that has a grade of 15 per cent. Eleven members of the committee were hauled about in the truck for half an hour. One hill, a mile long and as steep as any passable street in Altoona, was ascended at high speed and the car never faltered. On one steep hill the car was brought to a dead rest and held there, after which it was backed up the hill with apparent ease. This car has responded to every alarm in the district and has never cost a cent for upkeep. The car was taken over rough, unpaved roads and worked as well there as on the paved streets. Wilkesburg is a town of hills and the car never stalled, during the winter pulling out the horse-drawn vehicles repeatedly. The car is built with a heavy channel steel frame, built especially for fire truck service. Every piece of mechanism in the car is constructed at the Knox factory, and in this respect the car has an advantage over some others. The committee was enthusiastic over the showing of the car.

New Orleans, La.—The record-breaking run and getting-into-action test made by auto hose company No. 1 of the New Orleans fire department, under the personal supervision of Chief Louis Pujol, is the subject of much satisfaction to the residents of the Lake View district, who asserted that the fire protection there was not adequate, and for whose benefit the test was made. From its house, at Carrollton avenue and Moss street, the run of No. 1 was made to the fire hydrants at Harrison avenue and Julia boulevard, couplings were made and water thrown through 500 feet of hose in six and three-quarter minutes. During the run the machine had to halt four times for other vehicles, and had to make four turns that were very dangerous, one from Carrollton avenue into City Park avenue, one from the avenue to New Orleans, from that into Taylor avenue, and from that into Julia boulevard. The chauffeur who made the run is A. S. Pujol, son of the fire chief. The auto hose wagon is a Kissel make, has a 53-horsepower engine and a speed of fifty miles an hour.

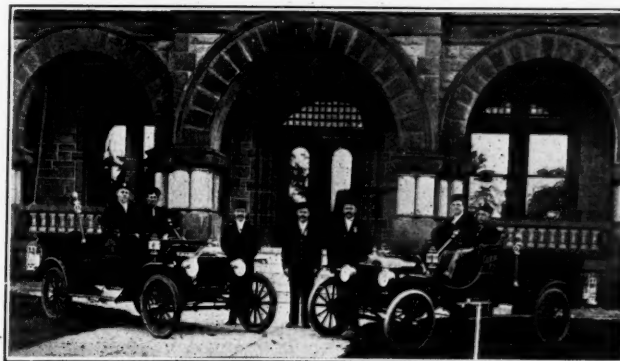
Ventnor City, N. J.—In the presence of a number of out-of-town fire-fighting chiefs, Ventnor City fire depart-

ment gave an exhibition and test of their auto fire fighting apparatus and succeeded in breaking all eastern records for water thrown per minute and for height at the pressure used. Using a 2-inch nozzle, equipped with a deluge set loaned by the Atlantic City fire department, the big pump threw a stream of 1,023 gallons per minute, and with 75-pound pressure at the nozzle the stream was thrown 175 feet into the air, 50 feet over the top of the water tower at Ventnor City. Among those who were interested watchers of the test were the mayor of Paterson; Chief Stag, of Paterson; Master Mechanic Ward, of Paterson; C. L. Willetts, district representative of the Robinson Fire Apparatus Co.; W. C. Cross, New York agent for the same firm; Chief Black, of Atlantic City; Councilman Powell, of the fire committee; Assistant Chief Albertson, Fire Marshal Carl Voelker, Foreman Charles Johnson, of the truck company; and Driver Price, of the chemical.

Lorain, O.—Lorain's new motor fire fighters, stationed at No. 1 engine house, have not had a fire call since the two machines were delivered March 26. Meanwhile, standing idle except for the try-outs and tests which were given them for several days after delivery, and the daily running of the engines in the station, the two machines have saved the city something in the neighborhood of \$82.90. Including the exclusive tests that were given the two vehicles before they were accepted, the machines have used a total of 120 gallons of gasoline and the cost of the fuel, together with certain minor expenses, make the total upkeep and running cost \$17.20 for the seven weeks they have been in Lorain. Fire Chief Hatt estimates that the cost of keeping four horses, including their feed, shoeing bills and small repairs to harness, to be something like \$100.10. The difference between the two figures shows a saving to the city of over \$80.

Sharon, Pa.—Sharon and Farrell council committees have joined forces in making an investigating trip to look into the merits and cost prices of motor fire trucks. It is reported that Farrell is likely to purchase a motor fire truck at the same time that Sharon does, if the Sharon council determines upon this remedy for overcoming the weak water pressure in the hill residence districts. The Sharon council committee, composed of Councilman Ralph R. Bell, H. T. Stewart and W. A. Cozadd, and Chief Fred Vanderholt, of the fire department, left this noon for New Castle. At Farrell the committee was joined by the Farrell committee, composed of Councilmen Mede Long and John Leyshon and Secretary John Nolan. After investigating the New Castle trucks, the committee will go to Youngstown to continue the investigation, returning to this city in the evening. The report of the local committee will be made to the city council at the next session of that body, when some action is reported likely to be taken. During the past week a number of representatives of motor fire trucks have been in the city, and a number of other investigating trips may be made by the committee at the invitations of the manufacturing companies.

Fort Worth, Tex.—The city bought two auto fire pumps, each with a 500-gallon capacity per minute. Each machine will cost \$7,500. They will be placed in the Tenth and Seventh Wards.



Courtesy San Antonio Express.

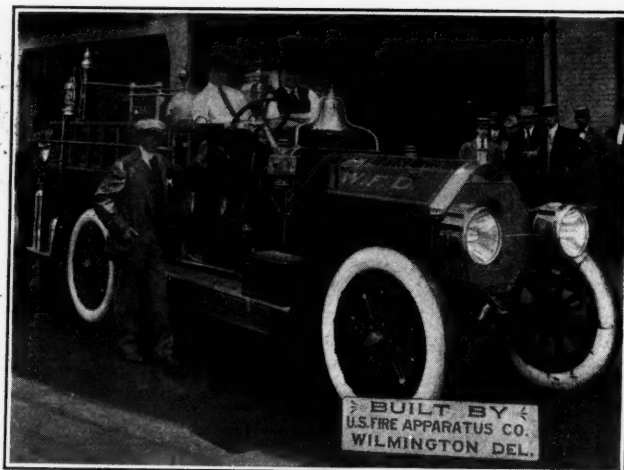
AUTOMOBILES PURCHASED FOR CUERO, TEX., FIRE DEPARTMENT.

Utica, N. Y.—Utica had a fine demonstration of what automobile fire apparatus will do when the motor chemical and hose truck recently purchased for the Herkimer fire department reeled off a mile and one-tenth in two minutes from a standing start. It was an impressive showing and indicated clearly the worth of such equipment for long runs. The automobile was standing in No. 1's engine house at Oneida square when an alarm was turned in from the House of Good Shepherd. Although the engine was dead when the gong rang, just two minutes from that time the machine was drawn up in front of the institution ready for business. The distance covered was a little more than one mile, and would require seven or eight minutes for horse-drawn apparatus. Persons who saw the machine in its flight up Genesee street had a startling illustration of what an automobile can do for a fire department. The truck carried the chief of the Herkimer fire department, Chief Sullivan of the local department, Robert Hazard of the American-LaFrance Company, which made the machine, Deputy Commissioner of Public Safety Nagel, William Filkins, Alderman Hughes of the Eleventh Ward, and several others.

Herkimer, N. Y.—A public test of the fire auto truck has been made in the presence of fire and civic officials of neighboring cities and villages and the members of the village board of trustees and municipal commission. The start was made from the fire house at the first stroke of the bell. The time consumed in the run and stringing of hose to point of fire was 90 seconds, the distance being about one-half mile. D. G. Lowman, of the American-LaFrance Company of Elmira was at the wheel. The contents of the chemical tanks were not consumed, but a hose for use from the hydrant was also strung. The whole test consumed less than six minutes.

York, Pa.—York's fire department, which has always prided itself upon keeping pace with other cities in the introduction of modern equipment, will probably have several pieces of motor apparatus within the next few months. Both the Vigilant and Eagles companies are at present considering the purchase of auto hose and chemical wagons. A Mack combination hose and chemical apparatus manufactured by the Mack Motor Car Company, Allentown, has been in the city for the past few days, and demonstrations of its efficiency have been given to Mayor Lafean, city councilmen and firemen. It is expected that a similar piece of apparatus manufactured by a different company will be exhibited here in a few days. A test of Baltimore's new million-dollar high-pressure pipe line service, intended for fighting heavy fires, was witnessed by Fire Chief Harry L. Wills of this city while on a recent trip to Baltimore. The chief brought back with him from Baltimore several new ideas, one of which, a semaphore signal system for the chief's auto, will be adopted here immediately. The signal system consists of several paddles. They are operated by the driver of the car and are displayed in a manner to indicate at what corner the speeding machine is to be turned into a side street. This enables pedestrians and teamsters to get out of the way and lets the path of the chief unobstructed. It is understood that the car for the use of Chief Wills will be secured in a few days, a fund for this purpose having been raised, and it is the desire of Mayor Lafean that the signal system be installed upon it at once. In the demonstration of the high-pressure system at Baltimore Chief Wills states that 24 streams, arranged in series, were thrown from two hydrants located on the court house plaza. Streams were thrown over the Calvert building. The lines were arranged in two batteries, a battery of 16 lines in front with 2½-inch nozzles, and back of that a battery of eight with 3-inch nozzles. Approximately 16,000 gallons of water a minute were thrown under pressure of about 110 pounds at the nozzle.

Wilmington, Del.—The picture illustrates the Fame Fire Company's handsome new automobile engine which has been delivered to the owners for trial. The body of the car and the fire-fighting mechanism were built by the United States Fire Engine Co., of Eleventh and Church streets, Wilmington. The machine was given some severe tests throughout the week and met and exceeded them all. The car will no doubt be formally accepted by the fire company in a few days.



Courtesy The Star, Wilmington, Del.

FAME'S NEW AUTOMOBILE FIRE ENGINE.

Auburn, N. Y.—A lengthy discussion on automobiles is expected at the next meeting of the Common Council, when contracts are to be let for the purchase of a combination fire truck and an auto tractor. Since the matter was tabled at a meeting one week ago, the aldermen have been devoting much time to a study of automobiles. Aldermen L. G. Hewitt, John S. Titus and D. B. Curtin, members of a special committee appointed to investigate fire autos and receive bids, have recommended both a Knox truck and tractor. The truck recently disabled in Owasco street and now being repaired was a Knox. Since the Council meeting of last week representatives of many concerns have interviewed the aldermen and advanced arguments that their machines, all with special devices different from others, were best suited for the fire department's use. The aldermen promised the arguments would be given consideration at the meeting.

Akron, O.—Last week Chief Mertz, of the Akron Fire Department, and Safety Director Dan'l Stein made a visit to nearly every fire house in the city, where the needs of each company were made known to the chief and orders given for repairs. The chief's car is of 60 horsepower, capable of going 70 miles per hour. The first visit was made at the house of Company No. 1, on South High street, the chief's headquarters. From there the house of Company No. 5, on Buchtel avenue, was visited. This house is among the most modern in the department, having been built less than five years. The house is a large one with a tile inside finish, and cement floors. The second floor is used for bedrooms. On the third floor there is athletic apparatus and card tables for the amusement of the men who live at the house. The firemen here get exercise, not only this way, but by real manual labor about the house. Chief Mertz hopes to construct a practise tower for the benefit of the men. When No. 5 opened, a few years ago, the affair was a big one and a feast and banquet was given on the third floor. Hundreds attended and the proceeds were expended in athletic apparatus. Company No. 2, located in East Akron, was visited next. This is next to the oldest house in the city, and without exception is the most beautiful. It is surrounded by large towering elm trees, and has been complimented as being one of the best appearing in the country. Its brick walls support matted, climbing vines, and in the center of the lawn is a cooling fountain, a home for scores of fish placed there by the firemen. Here a piece of fire fighting apparatus, a motor truck carrying 1,000 feet of hose and capable of discharging 900 gallons of water per minute, is kept. The machine is one of six cylinders and its power is 90 horse. It also carries many gallons of chemical. The house was constructed in 1882. From here a speedy trip was made to Company No. 8 in extreme South Akron. This house has been in service only a little over two years, and is used exclusively for motor apparatus. A visit was then made to Company No. 3 on South Maple street, which is a large and cozy house, but wanting for apparatus. The City Council, a few weeks ago, passed an ordinance to appropriate money for apparatus in this house, and a large motor truck will soon be installed, with other minor pieces.

GOVERNMENT AND FINANCE

Mayor's Cabinet Holds Regular Meetings

Youngstown, O.—The mayor's cabinet, consisting of the heads of the various departments of the city, recently held the first of a series of monthly meetings. Valuable suggestions were exchanged for operating the city government and all present expressed themselves pleased with the result. Since the first of the year Mayor Hartenstein had these meetings in view, but owing to the pressure of other municipal matters, this conference was the first opportunity the department heads have had to meet. A general discussion of various matters occupied about three hours, and although no special or particular action was taken, beneficial developments are looked for. Those present were the mayor, service and safety directors, city engineer, water works superintendent, solicitor, chief of police, sewer superintendent, street superintendent, and a representative of the board of health. It is said that this plan has been adopted in a number of cities with excellent results.

Accountants Submit Report

Trenton, N. J.—That the accounts of the city of Trenton under the old councilmanic administration were erroneously kept; that there were innumerable irregularities in the taking and transferring of cash from various accounts; that the business system in use in former years was incomplete—such is the result of the long-drawn-out investigation of the affairs of this city by the accounting and systematizing firm of Price, Waterhouse & Co., of New York, that submitted to the commission a report on the financial condition of the municipality.

City Funds Unaccounted For

Watts, Cal.—“We're busted. Who's got it?” That is the question of the little municipality of Watts, which suddenly finds itself penniless and is trying to find out why. It acknowledges the disturbing fact with a smile, but behind the smile is a threat—the threat that if the reason isn't good, something bad will drop. One administration has just gone out, and the new regime is handling the proverbial broom vigorously. Watts is anxious to know, among other things, how it expended \$350,000 of real money for four miles of oiled streets when it figures that \$24,000 would have been a liberal price, and who fired bullets through the home of Mayor C. H. Dodds just before the recent election. Libel suits are in the air and civic warfare impending.

Wants “City Needs” Board

Cleveland, O.—The establishment of a municipal needs committee, similar to the organization that has been formed in New York, to assist the city in solving its sociological problems, is favored by Councilman A. A. Benesch. The work outlined for the New York committee embraces consideration of labor questions, the questions of incomes and the cost of living, housing and rents, health, education, recreation, reformation and correction and city planning. Under the head of city planning are included a constructive franchise policy and laying out parks and playgrounds.

Savannah to Vote on Commission

Savannah, Ga.—The committee of representative Savannahans have submitted to Mayor George W. Tiedemann a tentative plan for a commission form of government for Savannah. The scheme provides for a mayor and four aldermen to be elected every four years on a general ticket, not by wards. They are to give their entire time to the city, the mayor receiving \$6,000 per annum and the aldermen \$4,800 each. Provision is made for city primaries, civil service board to protect firemen and police, afterward extending to all the branches of the services. The plan provides for the initiative, referendum and recall, safeguarding the latter feature in several ways. The tentative bill was prepared by a committee of ten appointed by the mayor last January and presided over by Major W. W. Williamson, a prominent business man and former president of the Chamber of Commerce. If an enabling act is passed by the legislature this summer the plan will be voted upon early in the fall.

STREET CLEANING AND REFUSE DISPOSAL

640 Loads Carted Away in This Year's Clean-Up

Corning, N. Y.—The annual clean-up instituted by the board of public works last year at the request of the board of health, was brought to a close for the second year. Six hundred and forty loads of refuse had been drawn away in the past week. This is 100 more loads than were carried away during the first clean-up in 1911. The work was begun a week ago, eight teams being put to work. The clean-up by the board has again proven very satisfactory. A large number of residents have taken advantage of the opportunity to have refuse drawn away gratis who would not have had their premises put in clean and sanitary condition otherwise.

City Gives Refuse Motor Truck a Trial

Chicago, Ill.—The city's first experiment with motor trucks as conveyances for the removal of street sweepings and refuse has commenced and there is a possibility that automobiles may supplant old dump carts for this work if the tryout is satisfactory to city officials. The experiment is confined to the First ward, where two automobile trucks are traveling between refuse boxes and the loading platform at South Water street and the Illinois Central tracks. Thirteen dump carts hauled by horses have been required to remove the contents of the boxes and the success of the modern trucks will depend on how much more work can be accomplished by their use. The test, it is said, will be whether they can replace enough carts to make them pay. Acting Superintendent of Streets Frank Solon asserts that a new scheme of handling refuse boxes should go with the installation of automobiles, but as the purchase of hundreds of additional boxes is required to carry it out the city will not spend the money for the boxes until sure that the automobiles are a success. The ultimate plan is not to dump the contents out of the boxes, as is done in the case of the dump carts, but to load box and all on the truck. The trucks are to carry a supply of boxes, and place an empty one wherever a full one is picked up. Because of the shortage of boxes much of the work in the experiment will be duplicated, but allowances will be made for the extra labor, officials of the street department assert. The trucks are scheduled to leave the First ward yards at 7.30 a. m. daily, proceed to the southern limits of the ward and work north. The full boxes will be loaded onto the automobiles, which have a capacity of three tons, and as soon as a load is obtained they will be taken to the loading platform, emptied and returned to the pick-up spot.

RAPID TRANSIT

Expert to Plan City System

Philadelphia, Pa.—To conduct the proposed inquiry for the development of a comprehensive plan of subways, elevated or other systems, the Blalbenburg administration has finally chosen A. Merritt Taylor, president of the Philadelphia & West Chester Traction Company, who has had a most successful career as organizer and constructor of systems in three States. Director Cooke announced the selection of Mr. Taylor after a thorough investigation into the qualifications and the needs of a particular type of man who can supervise the investigation by experts under his direction. Mr. Taylor accepts the post without a salary, with the only stipulation that he may be reimbursed for his personal expenses when the task is completed to the satisfaction of the city. Mr. Taylor will at once begin the organization of a force of assistants to study traffic conditions in this city and take up the investigations of the adaptable means of transportation, which is required to include existing local steam rail service, surface and existing subway and elevated systems, and the suburban overhead and third rail systems. Councils have provided \$50,000 for the inquiry, and it is anticipated that an additional \$50,000 will be required to make a thorough engineering and businesslike investigation of the transportation needs of the city and formulate a plan for construction.

MISCELLANEOUS

City of Schenectady May Sell Groceries

Schenectady, N. Y.—The city authorities are completing plans for opening a municipal cut-rate grocery store for the benefit of all city employes. It is expected that the store will be ready for business by June 1. In addition to groceries, ice will be sold in summer and coal in winter at a saving of about twenty-five per cent. The store is to be operated on a cash basis, without profit to the city.

Women Win Improvements

Columbus, Ind.—The women of Edinburg Johnson County believe in doing things. They organized a Civic League and have been active in agitating a number of questions for the public good and for civic improvement. The league boosted for a new school building and one is now assured; it boosted for a cleaner and more beautiful town and this has been accomplished by the cleaning of streets and alleys; it boosted for waste paper cans on the streets and these have been installed; it boosted for a larger and more beautiful cemetery and plans are being made for the improvement.

Pupils to Spend Savings for Trees

Dayton, O.—Instead of spending the stray pennies which come into their way on "all-day-suckers" and gum drops, the 12,300 school children of the city are going to buy mulberry trees, to be furnished them by the school authorities, and will join the city beautiful movement with which their elders are at present much concerned. It was announced that Superintendent of Instruction E. J. Brown had closed a contract with the Spring Hill Nurseries of Tippecanoe City, for 15,000 mulberry trees, which are to be distributed among the school children under the direction of Prof. C. C. Davidson, principal of the Irving school. The trees are to be furnished the children at the rate of four for a cent, to those who desire that many, and pupils who are unable to worm a copper out of their parents will be given a tree free. The new project of distributing trees among the school children has two aims in view. The school authorities hope to instill into the school youth the love and desire to plant trees, shrubbery and bulbs about their homes. With the known attractions mulberries hold for birds, it is also aimed to encourage members of the feathery tribes to make their homes and playgrounds closer to the city residences.

City Auditor Submits Annual Report

Lynn, Mass.—Between \$9,000,000 and \$9,500,000 is invested by the city of Lynn in land, buildings and equipment, according to the annual report of City Auditor Charles H. Tucker. Public Property Commissioner Bayard believes that this is a very conservative estimate and it is probable that he will submit a report to the municipal council in the near future in which the figures will be largely increased. Nearly \$3,500,000 worth of real estate is under the jurisdiction of the school department. The City Hall property is valued at \$434,956.50. The water department realty holdings are figured to be worth a little more than \$3,000,000.

Modern Improvements for Jerusalem

Jerusalem, Palestine.—Jerusalem will have its own tramways, a concession having been granted to a French firm, which will begin laying the lines during the coming summer. An English firm has been asked to submit tenders for lighting the city with electric light and a German syndicate is to improve the water supply by the erection of large reservoirs at springs about 12 and 18 miles north of the city. The pavements and sewerage system have received attention from the government. A few months ago a water cart was brought from England to supersede the men who sprinkled the streets with water from skins. The municipality has also provided itself with modern fire fighting appliances. A telephone service has been established and the police are shortly to be equipped with bicycles. The latest sign of this work of modernization is the arrival of a large American motor road roller.

To Pay for Use of Streets

Bangor, Me.—At a special meeting held for further consideration of the proposition of the Bangor Railway & Electric Company relative to compensation to the city for a twenty-five-years' extension of its track rights in Bangor, the City Council voted to accept the terms offered by President Graham, of the company, viz., \$4,000 a year for the first twelve and a half years of the period and for the second twelve and a half years an annual payment bearing the same proportion to the average annual gross earnings of the first twelve and a half years as \$4,000 bears to the gross earnings of the local system for the year 1911. In addition to this, the company is to pay one-half the cost of constructing suitable approaches to the new Bangor and Brewer Bridge, the right to operate cars on the bridge being included in the franchise extension. The city of Brewer, where a small part of the road is located, is to receive \$1,000 a year for a similar extension of track rights, for the first twelve and a half years, with readjustment of the compensation for the second twelve and a half years on the same basis that applies in Bangor.

City Would Lose Income

Chicago, Ill.—Members of the city council gas, oil and electric committee were told last night that the city had its choice between losing its 55 per cent. of the net receipts of the traction companies or compelling the latter to comply with the proposed electrolysis ordinance. Leonard A. Busby and W. W. Curley told the committee that the companies would have to pay out about \$22,000,000 to comply with the terms of the ordinance. If this were done, it was said, it would be impossible to give the city its usual 55 per cent. Mr. Curley proposed a drainage system to do away with electrolysis, which he said could be installed for \$400,000.

City Club Urges Utility Galleries as a Means of Preserving Street Pavements

Chicago, Ill.—Underground public utility galleries were urged as a means for better preserving Chicago street paving as the first lesson at the City Club in the study of underground Chicago and the distribution of energy. The form of teaching the lessons adopted by the City Club is original, as is also the transportation show which is being held. Here is the lesson as set forth among the exhibits in the room allotted to this study: "Public utility galleries, cost \$700,000. Should be built now. Necessary whether we have subways or not. Permanent pavement impossible until public utilities are housed in such galleries. Money wasted each year in tearing up downtown pavements would build a utility gallery complete in one city block. Enough pavement is torn up in the city each year by public utility companies to pay a street of the usual width from the city hall to below Grand Crossing, a distance of nine miles." Another portion of this same lesson arranged in the original form of the City Club follows: "Twenty sets of tunnels, tubes, pipes and wires are located beneath the surface of the Chicago streets. Each owner constructs, repairs and operates with little regard to the others. Result: Interference with surface traffic, enormous waste, permanent pavement impossible. Remedy: A comprehensive and unified plan for subsurface ordinance under city control. No future ordinance should provide for the opening of the streets except in accord with such unified plan." Demonstration of the need for public utility galleries is made by the committee on model downtown streets of the Chicago Association of Commerce. A one-year record of street openings is displayed as follows: Downtown, 1910-1911—Gas company, 282 permits, 787 openings; water and sewer departments, 241 permits, 354 openings; Commonwealth-Edison Company, 153 permits, 260 openings; Chicago Telephone Company, 35 permits, 80 openings; Postal Telegraph Cable Company, 7 permits, 7 openings; City Press Association, 9 permits, 9 openings; Cosmopolitan Electric Company, 4 permits, 4 openings; Chicago Postal Pneumatic Company, 3 permits, 3 openings; Western Union Telegraph Company, 5 permits, 5 openings; Illinois Publishing & Printing Company, 1 permit, 1 opening; totals, 740 permits, 1,500 openings.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities**Change of Street Grade—Abutting Owner's Rights**

People ex rel. Flaxman vs. Hennessy et al., Board of Assessors of City of New York.—An abutting owner on a street or avenue where the grade has been established by use and improvement by public authorities is not entitled to damages based on a claim of improvement made during the 20 years of such user.—New York Supreme Court, 134 N. Y. S. 145.

Torts—Presentment of Claims

Anderson v. City of Birmingham et al.—The commencement within six months of a suit against a city for water damages, caused by a street embankment and grade, was a sufficient presentation of the claim, within Code 1907, providing that claims against municipalities for damages growing out of torts shall be "presented" for payment within six months after their accrual, or be barred.—Supreme Court of Alabama, 58 S. R., 256.

Street Improvement—New Contract

Carlson et al. v. City of South Omaha et al.—The fact that, after a public improvement is legally ordered and partly constructed under a contract, a new contract for the remainder of the work is entered into, cannot affect the legality of the first steps taken by which the improvement was authorized and required.—Supreme Court of Nebraska, 135 N. W. R., 1047.

City Employees—Acceptance of Compensation—Presumptions

Byrnes v. City of New York.—That an employe for more than five years accepted monthly payments and signed monthly pay rolls without protest created a presumption that the payments were intended to be in full for all services previously performed.—New York Supreme Court, 134 N. Y. S., 759.

Paving Contracts—Selection of Materials

Union Paving Co. et al. v. Board of Contract and Supply of City of Schenectady et al.—It is not against public policy to permit the proper municipal authorities or the taxpayers along a street to choose a superior pavement at a moderate price, though such pavement is patented. New York Supreme Court, 134 N. Y. S., 739.

Contracts—Delay in Payments—Progress of Work

Cranford Co. v. City of New York.—Where a contract between a city and a contractor contained provisions for the prompt completion of the work, and that "partial payments may be at any time withheld if work is not proceeding in accordance with this agreement," the contractor would not be entitled to rescind and sue on a quantum meruit for the non-payment of monthly estimates, where the speed contracted for was not maintained up to the time of the election to rescind.—134 N. Y. S., 839.

Personal Injuries—Defective Notice

Walker v. City of New York.—A notice stating the place of injury as being on the west side of C. street, between D. and N. avenues, was insufficient; the defect complained of being ice, and the distance between D. and N. avenues being over 800 feet.—New York Supreme Court, 134 N. Y. S., 691.

Sewer Assessments—Objections—Evidence

Collins et al. v. City of Ellensburg et al.—Where a public improvement, constructed by day labor, was of the same character in the original district, as fixed by the declaratory ordinance, and in the territory subsequently included, the owners of property in the original territory could segregate the actual cost of the work done in the territory subsequently included and deduct it from the entire actual cost, and the remainder up to the estimate could be assessed against the property in the original district; but, in the absence of any showing on the subject, it would be presumed that the inclusion of the additional property did not add anything to the assessment against the property in the original district.—Supreme Court of Washington, 122 P. R., 1011.

Issue of Bonds—Limitations

City of Swainsboro v. Coleman et al.—The city of Swainsboro is limited by its charter to the issue of bonds for the purpose of purchasing land upon which to erect schoolhouses, and for building and furnishing the same, and for the establishment of an electric lighting plant and water works system, to an amount not exceeding in the aggregate the sum of \$20,000.—Supreme Court of Georgia, 74 S. E. R., 688.

Independent Contractor—Dangerous Work

Von Longerke et al. v. City of New York et al.—While an employer is liable for the negligence of an independent contractor where the thing contracted for is a nuisance or dangerous per se, the construction of a tunnel excavation across a street according to plans which kept the tunnel eight feet from a water main, which was broken by negligently changing the course of the excavation by the contractor, was not a nuisance or dangerous per se, so as to make the one contracting with the independent contractor liable for the latter's negligence in running the tunnel into it.—New York Supreme Court, 134 N. Y. S., 832.

Public Improvements—Damages

Rutherford v. City of Williamson.—The true measure of damages to a lot abutting on a street, occasioned by a change in the grade line of the street, is the difference between the value of the lot immediately before and its value immediately after the street improvement, less any special or peculiar benefits to the lot because of the improvement of the street, but leaving out of account such general benefits as accrue to it in common with other property similarly situated.—Supreme Court of Appeals of West Virginia, 74 S. E. R., 682.

Municipal Powers—Delegation to Officers

Cannon v. Mayor, Etc., of City of Americus.—In the absence of express statutory authority so to do, a municipal corporation cannot delegate to the mayor power conferred upon it to fix the amount of a license fee to be paid by one pursuing an occupation within the limits of the municipality.—Court of Appeals of Georgia, 74 S. E. R., 701.

Bond Issues—Method of Voting

City of Winston v. Wachovia Bank & Trust Co.—Winston City charter provided that the power to create a public debt and issue bonds for municipal purposes should depend upon the passage of an ordinance by the board of aldermen specifying the purposes of the debt, the amount, etc., and the approval of such ordinance by a majority of the qualified registered voters. An election was held under the charter to determine whether a specified indebtedness should be created for permanent improvements for street and sidewalks, another sum for increased sewer facilities, another for the extension of water mains and improvements in the water system, with other sums for the erection and equipment of school buildings, hospital facilities, etc.; the ballots provided submitting the question of such indebtedness as a whole. Held that, as the charter did not expressly require that the separate items of municipal indebtedness should be placed on one ballot, it will not be construed as authorizing an election in contravention of the principle that each voter should be afforded an opportunity to vote for a single proposition, and the election was invalid.—Supreme Court of North Carolina, 74 S. E. R., 611.

Land Grants—Rights in Streets

Cleveland Terminal & V. R. Co. et al. v. State ex rel. Attorney General.—In conducting transactions with respect to its lands, the State acts in a proprietary, and not in a sovereign, capacity, and, being amenable to all the rules of justice which it prescribes for the conduct of its citizens, it will not be permitted to revoke a grant of lands made upon a valuable consideration which it retains. When the Governor, in the exercise of authority expressly conferred upon him by statute, grants to a municipality "all the interest of the State" in lands which it owns in fee to be used for streets and other purposes, the municipality, reserving the right to use the same for street purposes without compensation, may execute a valid lease of such lands to a railroad company for its general purposes.—Supreme Court of Ohio, 97 N. E. R., 967.

NEWS OF THE SOCIETIES

Fourth National Conference on City Planning

The conference opened at Boston, May 27, with a luncheon given by Mayor John F. Fitzgerald, which was followed by an automobile tour. Mayor Fitzgerald stated that the opposition, which had temporarily, at least, defeated the plans of the Metropolitan Commission, came from the suburbs, where the citizens perhaps feared their adoption might lead to closer political union. In reviewing what had been accomplished in Boston in recent years he said:

"Looking at the situation broadly, we have had great success in recent years in simplifying the tortuous plans of our ancient city. One by one we have inserted necessary links in our complicated street system. The whole Park square area, which you must have seen lying like a desert in the heart of our most flourishing section, is soon to be developed by a street system of its own, which represents the joint action of the city government and the owners of the land. New studies for the rearrangement of Copley square will be exhibited in the art room of the Public Library, which is your headquarters. Every street will soon be widened and open up the shopping district, providing access from the Boylston street station of the subway.

"Our new subways themselves, which are merely underground streets, are an interesting study and I hope you will find time to take the ride under Beacon Hill and over the new causeway in the West End. In such achievements as these we find inspiration and reason for hope that another half decade will see our beloved city completely transformed. For the impetus to the movement I believe you gentlemen deserve particular credit. You have in you something of the engineer and something of the philanthropist, the cool precision of one and the ardor of the other and I do not know any happier combination."

Owing to the plans for three automobile trips—one to the Fells, with an inspection of the metropolitan park system; another to Revere Beach and the third to Harvard—the responses to the mayor's call for remarks were brief. Among those who spoke were Mayor E. W. Fisk, of Mt. Vernon, N. Y., who said his little city wished to plan wisely in order that it might have something beautiful to give New York when annexation came; Roscoe N. Clark, chief engineer of Hartford, who said his city was concerned with the problem that the conference would discuss; Charles Moore, of Detroit, Frederick Ford, city engineer of New Haven, who told of the plans for the spending of nearly \$7,000,000 on a dignified approach to the city; Dr. Dana Bartlett, of Los Angeles, who extended an invitation to the conference to meet there in 1915; Munson Haven, secretary of the Chamber of Commerce of Cleveland, O., who reported that the city government had just voted a bond issue to complete the noted group of city buildings; E. K. Morse, of Pittsburgh, and Frederick L. Olmsted.

For the automobile tours automobiles were furnished by the Chamber of Commerce. The lower basin of the Charles River and the embankment were first visited. From there they pro-

ceeded to the Summer street bridge, where the members left the automobiles to inspect the waterfront. The Marine Park and the L street baths in South Boston, the residential districts of Dorchester and Roxbury, Franklin Park, and Franklin Field, Jamaica Pond, the Arboretum and Brookline were all in turn visited, the party returning to the city by way of the Fenway and then proceeding to Cambridge. There they were separated into two parts, one remaining to inspect Harvard University, and the other making a tour of the Middlesex Fells, returning by way of the Mystic Valley Parkway.

Formal sessions were opened at the Boston Public Library at 8 p. m., Frederic Law Olmsted, presiding. Papers on the "Meaning and Progress of City Planning" were read by Mr. Olmsted, Arnold W. Brunner, of New York, and Professor George F. Swain, of the department of civil engineering, Harvard University.

At the second session, Tuesday, 10 a. m., Lawson Purdy, president of the Department of Taxes and Assessments, New York City, presided. The topic was "Paying the Bills for City Improvements." Papers were presented by Nelson P. Lewis, chief engineer of the Board of Estimate and Apportionment, New York City, and James A. Gallivan, of the Boston street commissioners. Mr. Gallivan's paper was critical to a considerable extent and dealt largely with Boston problems. He said that the proportion of the cost of public improvement to be assessed on private property should not be an arbitrary 50 per cent. or any definite percentage fixed by legislation, but should be left to local authorities to decide. He does not regard the new Massachusetts constitutional amendment, providing for excess condemnation in the construction or widening of streets, as a policy that can be given general application, and he appears to make out a very plausible case with reference to the proposed hundred-foot trucking highway between the North and South stations. His figures appear conservative and they would seem to put the city in a speculative attitude were the enterprise undertaken on that basis with an excellent chance that the transaction would put it on the wrong side of the ledger. On the other hand, the proposed development of the Park Square lands offers an opportunity to employ this method to the undoubted advantage of the municipality. If his conclusions are correct, therefore, the new privilege seems to be one that should be exercised with caution. Answering his general question he sees no good reason why the millions expended by our municipalities for public improvements should not be returned to them in generous measure "by land owners who reap such tremendous resultant profits."

The afternoon was left open for the informal conferences. At the evening session "City Planning" studies were discussed. J. Randolph Coolidge, Jr., of the Boston Chamber of Commerce, fellow of the American Institute of Architects, read a paper on "Blighted Districts," in which conditions in certain sections of Boston were discussed. Arthur A. Shurtleff, of Boston, fellow of the American Society of Landscape Architects, read a paper on "The Public

Street Systems of Cities and Towns About Boston in Relation to Private Street Schemes."

In discussing Mr. Coolidge's paper, Mr. Purdy said that unless such blight was arrested it meant danger in the future, and that there is always a tendency for such a district to become a slum district. In his opinion the fault of such a blighted district often rested in the city government, and that in most cases, if the circulation of the district was properly attended to, if the traffic facilities were improved, the blight would be arrested, and the value of the property would gradually rise instead of fall. He pointed out that the decrease in assessed valuation in such a district, like Broadway below Fourteenth street, meant an enormous loss to the city from taxes.

An open forum was on the program at the Public Library Wednesday morning, the talks being limited to five minutes. Frederic C. Howe, president of the People's Institute of New York, presided. In spite of limitations on the time of speakers, first to five and later to two minutes, it was a long session. An interesting and amusing event this morning came when the question of publicity of the city planning work was under consideration. Mrs. Rollin Norris, of the "Main Line" Houston Association of Ardmore, Pa., a suburb of Philadelphia, arose to speak for the third time. The chairman tried to cut her off, the understanding being that a member could speak only once. She kept on and after saying something about "give a hundred dollars" sat down. "Beg pardon, Mrs. Norris, will you state that again?" said the chairman, and everybody roared. "I merely said that to help along this matter of publicity I will give a hundred dollars," said Mrs. Norris, and there was loud applause, followed by laughter as the chairman said: "It is evident that the chair is not sustained." Ex-Mayor Rayburn, of Philadelphia, rose and was applauded as he said: "I'll give an equal amount." A telegram was received from the Winnipeg Town Planning Committee inviting the members of the conference to attend the first Canadian conference at Winnipeg July 13.

At the afternoon session a paper on "The Zoning Principle of Germany Applied to the United States" was read by Benjamin Antrim Haldeman, assistant engineer in charge of city planning of the Philadelphia Bureau of Surveys. The presiding officer was Lawrence Veiller, secretary of the National Housing Association of New York.

"Ugly blots on the body politic" were condemned at the closing session of the conference, held at the rooms of the Boston City Club, under the presidency of James P. Munroe, with J. Randolph Coolidge, Jr., of Brookline, as toastmaster.

"We must enter," said Dr. N. Dwight Hillis, of the Plymouth Church, Brooklyn, "upon a new epoch in regard to cities. The whole life of the people must be transformed. We want to possess ourselves more and more of the beautiful in literature, in art, in architecture and in municipal buildings. In social things we aim at conditions which will make possible an average income per family of \$2,500 per annum. We are going to abolish the tenement house, and generally we are going to have a social renaissance."

Mayor Fitzgerald said: "The more you develop steel construction and urge your skyscrapers upward so that they

literally touch the clouds, the more you congest your downtown streets and residential sections adjacent to the business district. While I think there is danger of artificiality in the towns that spring completely out of the head of a landscape designer (a natural shrub always pleases me more than the trimmed bushes of the Japanese garden), I do not think this consideration outweighs the importance of distributing a population which is suffering in health, efficiency and morals from the evils of overcrowding. I hope this may be taken up seriously, as it seems to me as important as any subject which has been considered."

Frederic C. Howe, president of the People's Institute, New York, complimented Boston on the work it had already done in city planning.

The conference at its business meeting at City Hall unanimously adopted resolutions relative to assessment for improvements. The resolutions provide among other things that the entire city or metropolitan district shall bear no part of the expense of an improvement unless the improvement is in some degree of metropolitan importance and benefit.

The executive was enlarged from 11 to 16 members, and these were elected: Frederick Law Olmsted, Brookline; Nelson P. Lewis, New York; George E. Hooker, Chicago; Lawrence Veiller, New York; Andrew Wright Crawford, Philadelphia; Frederic C. Howe, New York; Lawson Purdy, New York; Richard B. Watrous, Washington; J. P. Hynes, Toronto; George S. Webster, Philadelphia; George B. Ford, New York; E. P. Goodrich, New York; E. H. Bennett, Chicago; George Ross, Montreal; John C. Dana, Newark, and Harry C. Wright, New York.

A committee was appointed to try to have an exhibit of municipal activities at the Panama-Pacific Exposition.

Flavel Shurtleff reported that the conference had \$562.59 in its treasury.

International Association of Chiefs of Police

Major Richard Sylvester, Superintendent of Police, Washington, D. C., has sent invitations to chiefs of police in foreign countries advising them that the annual convention of the International Association of Chiefs of Police will meet in Toronto, Canada, July 9, and continue five days. It is stated in the invitations that the association includes among its members nearly 300 heads of police forces in the United States, Canada and foreign countries; that its aims and purposes are to elevate the standard of the police institutions.

Major Sylvester, as president of the association, declares the organization is also intended to improve the status of the police officer, to insure co-operation among the police organizations of the world, to make generally effective the modes of criminal identification, to secure expeditious action on the part of the police everywhere, to devise reciprocity proceedings and to introduce modern facilities in the conduct of police affairs in every land.

Interchange of opinions, presentation of existing conditions, reading of police papers and discussions following the same, have all proved advantageous heretofore, and it is proposed to extend the good work by enlisting commissioners of police, chiefs of police, superintendents of police and high constables to attend this convention.

National Municipal League

The tentative program for the Los Angeles convention, July 8-12, announced by Secretary Clinton Rogers Woodruff, of Philadelphia, includes discussions on expert city planning, simplicity, publicity and efficiency in municipal affairs, commission form of government, commission government and city planning, municipal finances and taxation, excess condemnation, civil service laws, honesty plus efficiency, State vs. municipal regulation of public utilities, street railway franchises, direct legislation measures, operation of woman's suffrage, home rule in cities, home rule in counties, the boss in politics, socialism in municipalities, commercial value of city planning, housing, municipal help, municipal housekeeping, the proposed new charter for Los Angeles and many other matters of like interest to all California cities. The presiding officers are to be Governor Hiram W. Johnson, Mrs. Rudolph Blankenburg, of Philadelphia, and Hon. James D. Phelan, of San Francisco.

The officers of the National Municipal League are: President, William Dudley Foulke, of Indiana; vice-presidents, Jane Addams, H. D. W. English, William Kent, Camillus G. Kidder, A. Lawrence Lowell, George McAneny, Charles Richardson; treasurer, George Burnham, Jr.; secretary, Clinton Rogers Woodruff, of Philadelphia.

In addition to the interest which will center about the discussions held at the convention there will be a great civic exhibit, to be open from July 8 to 20. Rev. Dana W. Bartlett, of Los Angeles, who is chairman of the committee, is now in the East and writes that the material promised, some of which is already on the way, will make up the largest, most educative, instructive and entertaining exhibition of civic and municipal advancement ever held in the United States.

Calendar of Meetings

June 11-12.
Police Chiefs and City Marshals' Association of Texas.—Convention, San Angelo, Tex.

June 10-12.
Mayors Conference of New York.—Third Annual Meeting, Utica, June 10-12.—Mayor C. C. Duryee, President, Schenectady, N. Y.—Wm. P. Capes, Secretary, New York.

June 10-14.
National Electric Light Association.—Annual Meeting, Seattle, Wash.—T. C. Martin, Secretary, 29 West 39th street, New York City.

June 12-14.
Maryland State Firemen's Association.—Twentieth Annual Convention.—Edward Stevenson, Secretary, Lonaconing, Md.

June 17-22.
South Dakota Firemen's Association.—Twenty-eighth Annual Tournament and Convention.—M. H. Mussman, Secretary, Chamberlain, S. Dak.

June 18-20.
Georgia Association of Fire Chiefs.—Annual Convention, Americus, Ga.

June 19-21.
Wisconsin State Firemen's Association.—Annual Convention and Tournament, Reedsburg, Wis.—Fred H. Henry, Secretary, Jefferson, Wis.

June 20-21.
New York State Association of Fire Chiefs.—Annual Convention, Albany, N. Y.—U. G. Lucas, Secretary, Poughkeepsie, N. Y.

June 25-27.
South Carolina State Firemen's Association.—Eight Annual Convention and Tournament, Rock Hill, S. C.

June 25-28.

American Institute of Electrical Engineers.—Annual Convention, Boston, Mass.—F. L. Hutchison, 33 West 39th St., New York.

June 26-28.

Society for the Promotion of Engineering Education.—Annual Meeting, Boston, Mass.—H. H. Norris, Secretary, Cornell University, Ithaca, N. Y.

July 8-12.

National Municipal League.—Annual Meeting, Los Angeles, Cal.—Clinton Rogers Woodruff, Secretary, 705 North American Building, Philadelphia, Pa.

July 9-13.

International Association of Chiefs of Police.—Annual Convention, Toronto, Ont.—Major Richard Sylvester, Superintendent of Police, Washington, D. C., President.

August 28-30.

Virginia State Firemen's Association.—Twenty-sixth Annual Convention and Tournament, Roanoke, Va.—L. E. Lookabill, Vice-President, Roanoke.

August 26-30.

International Association of Municipal Electricians.—Seventeenth Annual Convention, Peoria, Ill.—Clarence R. George, Secretary, Houston, Tex.

September 10-12.

International Association of Fire Engineers.—Annual Convention, Denver, Col.—James McFall, Secretary, Roanoke, Va.

September 18-19.

New England Water Works Association.—Thirty-first Annual Convention, Washington, D. C.—Willard Kent, Secretary.—Headquarters, Boston, Mass.

September 24-26.

Central States Water Works Association.—Sixteenth Annual Convention, Detroit, Mich.—R. P. Bricker, Secretary, Shelby, O.

November 12-15.

American Society of Municipal Improvements.—Annual Convention, Dallas, Tex.—A. Prescott Polwell, Secretary, 50 Union Square, New York.

PERSONALS

BONANCHAUD, HON. SAMONTINE, Mayor of New Roads, La., for the last 12 years, has resigned office to accept the office of Sheriff, to which he was at elected at the recent election.

COLE, HOWARD J., New York, has been appointed City Engineer for Montclair, N. J.

COMINGS, FRANK, Perth Amboy, N. J., has been appointed Chief of the Fire Department.

DAVIS, GEORGE V., Bangor, Me., has been appointed Superintendent of Police. The department has been reorganized and salaries increased.

FENLASON, C. W., Rockyford, Colo., has been elected Police Magistrate.

HUNT, A. M., San Francisco, Cal., has been appointed Consulting Engineer for the city in the matter of the Hetch-Hetchy water supply.

IVIE, REV. JOSEPH H., has been appointed Chaplain of the New York Fire Department. The Rev. Mr. Ivie was formerly Chaplain of the Fishkill (N. Y.) Fire Department.

KASH, DR. O. S., Carlisle, Ky., has been appointed County Health Officer.

NEWCOMB, BRYANT B., has been elected Mayor of Long Branch, N. J.; Frank L. Howland, Commissioner of Parks; Marshall Woolley, Commissioner of Streets, and Thomas V. Arrowsmith, Commissioner of Public Safety.

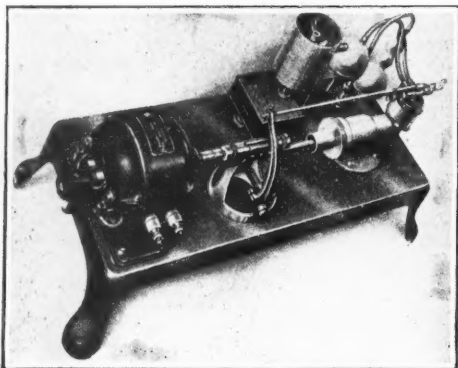
PALMER C. S., Duluth, Minn., has been elected City Clerk, succeeding H. W. Cheadle, who resigned after fourteen years' service.

SNOW, WM. H., Holyoke, Mass., has tendered his resignation as General Manager of the Holyoke Gas and Electric Department.

MUNICIPAL APPLIANCES

Eddy Smoke Recorder

The Hamler-Eddy Smoke Recorder Co., 3906 S. Halsted street, Chicago, Ill., manufacture an instrument for recording in a boiler room or office the density of the smoke emitted from the chimney, which is said to be the only device of the kind made. The argument presented by the manufacturers for the value of the instrument as a means of smoke prevention is substantially as follows: Smoke was declared a nuisance in England as far back as the times of Queen Elizabeth and it is still a nuisance. Nearly three patents a week is the record for smokeless furnaces in the last twenty years—still we have smoke. Carelessness and ignorance are the two great causes of the smoke nuisance. According to the testimony of smoke inspectors, carelessness is responsible for 90 per cent. of it. To check and punish carelessness on the part of firemen in allowing dense smoke to be emitted, a record is necessary.



SMOKE RECORDING DEVICE.

This is what the Eddy smoke recorder does. The apparatus was brought to perfection early in 1909, but was not placed upon the market until it had been tested in a number of plants. It was found that when the fireman watched the smoke recorder, noted the furnace conditions when the apparatus reported smoke, he soon learned how to operate the furnace without smoke, or, at least, with a negligible quantity. The Eddy recorder is a scientific instrument made as finely as is customary with such apparatus. The instrument consists of a pump, a clock and a piece of paper. The paper, or chart, is moved by the clock at a rate of speed which properly corresponds to the speed of

the pump. The pump drives a jet of smoke and gases from the chimney against the paper. Moisture must be removed from the gases in order to secure a perfect record. This is done by a simple device. The mechanism is driven by an electric motor of one-twelfth horsepower. The apparatus is 12 inches high, 12 inches wide, 25 inches long and weighs 50 pounds. It is housed in a glass case and may be set up in any boiler room regardless of dust and drafts. It is self-oiling, and there is no occasion to touch it except when changing the chart. The chart is sectionally ruled in hours and minutes, each chart covering a period in excess of twelve hours. It is possible to tell almost to the second when the chimney began to smoke, how long the smoke lasted and what its density was. The records are said to be inefaceable, and if the pipe connections are run without valves the fireman cannot tamper with the instrument.

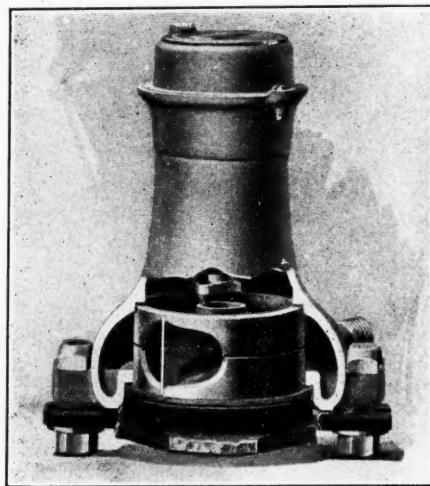
Trident Brass-Lined Breakable-Bottom Disk Meter

The Neptune Meter Company, 90 West street, New York, manufacture a meter of the so-called frost-proof type. Thousands of small water meters freeze every winter and the annual damage from this cause runs into thousands of dollars. In the frost-proof type, the meter is so constructed that some small, easily replaced part gives way first, thus protecting the more valuable mechanism. In the Trident meter, illustrated, there is a brass lined casting of vulcanized rubber having four retaining arms. These arms are designed to withstand a pressure very much greater than is ever encountered in ordinary service. When the meter is frozen the arms break, releasing the bottom and the measuring chamber. Both the breakable bottom and the specially constructed disk chamber are exclusive features of the Trident disk meter. Neither one in itself would be sufficient to protect the meter from destructive pressure of freezing. The cost of a new breakable bottom is nominal.

For use in Southern climates and in special locations where there is no danger of freezing the Neptune company makes a split case meter. This meter has a bowl-shaped casting machined to fit the measuring chamber. This construction is said to be very economical to maintain.

G. T. Globes for Gas and Electric Lighting

The Gleason-Tiebout Glass Company, 99 Commercial street, Brooklyn, N. Y., make glass globes in a variety of shapes and materials for street lighting. In thinking of illumination the average citizen pictures to himself only a light source and is apt to be surprised when his attention is called to the fact that in outdoor lighting the source of light invariably includes a piece of glassware as well as a luminous surface. As a matter of fact, glassware largely determines the quality of the illumination and is an essential item in the cost of maintenance of any lighting system. There are several types of glass used for street lighting globes. For ornamental street lighting, crystal roughed inside alabaster and Canara, a translucent glass, are much used. Among other types are

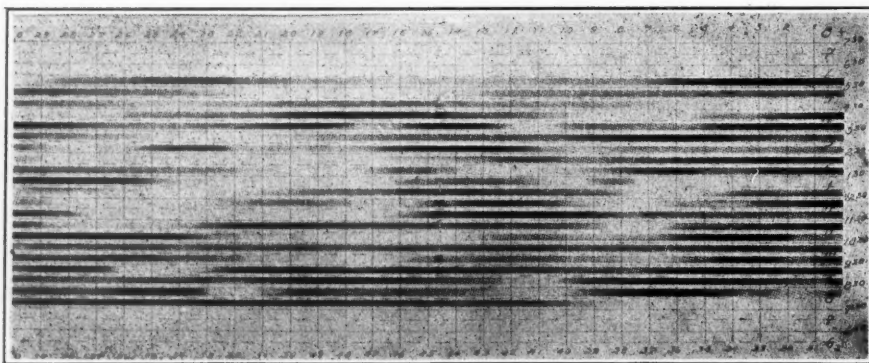


NEPTUNE METER FROST-PROOF TYPE.

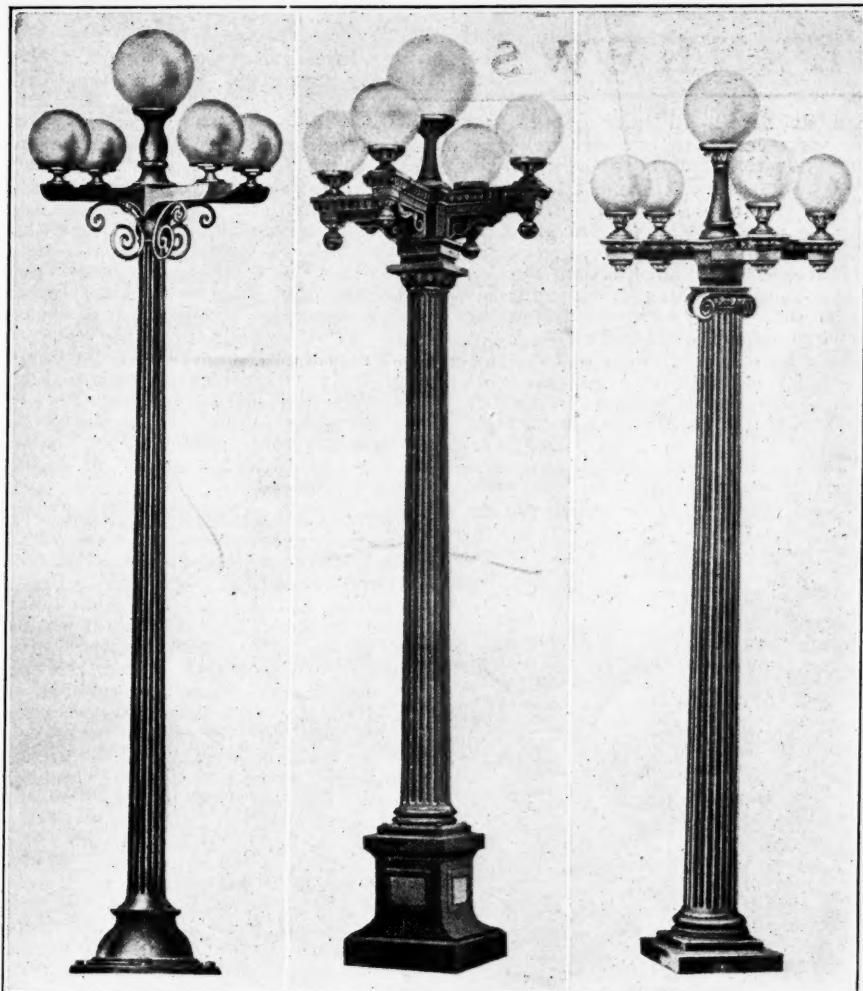
crystal, the familiar translucent glass and opal, the white translucent glass. Crystal or clear glass is still the most largely used of all types in exterior lighting, for the reason that it permits the use of practically all of the light, the absorption being the least of any glass. Boulevard gas globes of clear glass are very extensively used. Enclosed arc lamps are generally fitted with a clear outer globe, though alabaster is also used. Magnetite arcs are generally fitted with clear globes, the lower portion sometimes being frosted.

For ornamental cluster lighting the Gleason-Tiebout company offer their Alabaster-Polycase glass. This consists of a skin of alabaster glass between two thicknesses of crystal glass. The purpose of this construction is to reduce the wall of alabaster to a minimum. In this globe the lamp filament is shielded entirely so that in effect a solid ball of light is produced. These globes are used in New York, where a high quality of lighting is required as in the Mall, Central Park, about park entrances, public buildings and the like.

Canara is the name applied to a comparatively new material in the way of translucent glass. As the name suggests, specially in the heavier forms produced by pressing, it has a decided resemblance to pure Canara marble. In the form of blown globes it produces a very considerable diffusion, with exceedingly little absorption. It has the peculiarity of cutting off the glare of the filament of a tungsten lamp, while clearly showing its outline.



SPECIMEN RECORD MADE BY HAMLER-EDDY SMOKE RECORDER.



Cast Iron Standards made by Davenport Machine and Foundry Company. Total height from 12 feet 9 inches to 13 feet 1½ inches. Cross arms, center to center of globes, 36 to 38 inches. Diameter of globes, 10 to 14 inches.

Exhibit Material—House Fly

The Educational Exhibition Co., 70 Waterman street, Providence, R. I., have issued a bulletin describing the material which they prepare for use at exhibitions and lectures designed to educate the public in the part that flies play in the spread of disease. Somewhat of a novelty is their moving model. This shows in a striking manner how flies carry germs from filth to food. It represents a backyard in miniature. On the right is a barn with a huge pile of manure beside it; in the

center is a small out-house with privy vault; and at the left there is a two-story house. Suddenly a swarm of flies is seen to emerge from the manure pile, fly across the yard and disappear into the privy vault. A second later the swarm reappears from the vault and flies in through the kitchen window of



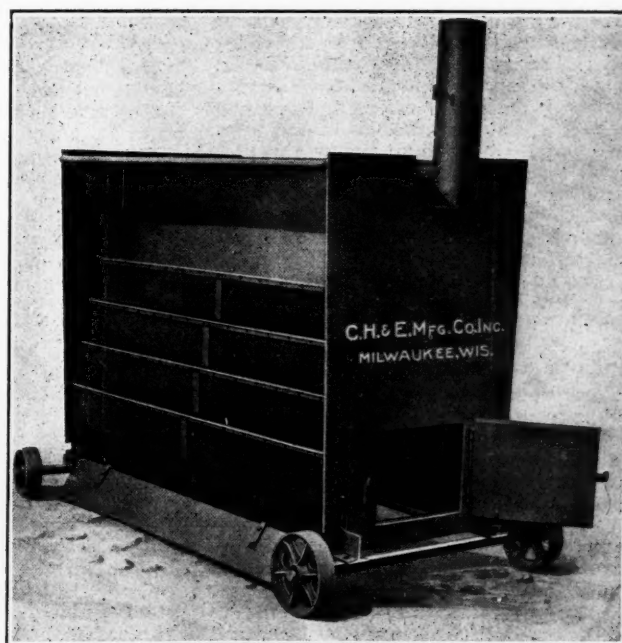
G. T. ALABASTER-POLYCASE GLOBES USED IN NEW YORK IN LOCATIONS SIMILAR TO ABOVE.

the farmhouse. This action is repeated every thirty seconds, as long as desired. The model is operated by means of a small electric motor, which may be attached to any lamp socket.

Gravel Heater

The C. H. & E. Manufacturing Co., Inc., Milwaukee, Wis., have placed on the market a gravel heater operated on the gravity principle, with no mechanism, for which large heating capacity is claimed. The manufacturers state that the outfit will heat from six to eight tons of gravel per hour. The gravel is said to be ready for use in fifteen minutes from the time fire is started and to heat as fast as two men can shovel the material into the hopper. The frame is built of heavy tees and angle irons, strongly bolted and riveted together. The main frame or base is built of 4-inch by 4-inch tee iron, mounted on heavy axles of 1½ inch square steel. The smoke stack, built of No. 14 gauge steel, well riveted, runs through the hopper full length, so that the gravel has the advantage of all the heat possible while in its flow. A damper in the stack controls the draft. The length over all is seven feet; width, three feet six inches; height, five feet three inches. Total weight, 1,600 pounds. The main body of the heater is built of No. 8 gauge sheet steel. The hopper of No. 8 gauge sheet steel is well braced so that the constant pressure of the load will not warp it out of shape. The sides of the hopper are protected by angle iron so that the blow of a shovel will not dent it. The side baffle plates are eight inches wide of No. 10 gauge sheet steel. The front axle works on a king bolt so that the machine can be readily turned. The face of the wheels is three inches and the front axle is supplied with a hook so that it can easily be hitched on to a wagon. There are two heavy fire doors, one on each end of heater.

The possibilities of heating gravel, crushed stone and possibly sand on a sufficiently large scale to satisfy the demands of bituminous road construction are interesting. If it can be done cost of power and wear of machinery are eliminated, though injury to metal from heat would still remain.



GRAVEL HEATER OPERATING ON GRAVITY PRINCIPLE.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago—Quotations: 4-inch, \$27; 6 to 12-inch, \$25; 16-inch and up, \$24.50. Birmingham—Manufacturers' report plants as very active, a number of small orders coming in steadily and a disposition to advance prices by slow stages. Quotations are inclined to advance. Owing to improved railroad conditions shipments are easier. Quotations: 4 to 6-inch, \$23; 8 to 12-inch, \$22.50; over 12-inch, average, \$21.50. New York—While public lettings in the immediate future are few and unimportant, the demand from private water and gas companies maintains a good volume of business. Quotations: 6-inch, car loads, \$21 to \$23.

Lead.—Stocks in St. Louis appear to be rather lighter and persons in close touch with the American Smelting & Refining Company expect that company to advance its price at an early date. Quotations: New York, 4.20c.; St. Louis, 4.125c. Independents are asking 4.225c. to 4.25c., New York.

Trackless Trolley.—The Trackless Trolley Company of America, 50 Church street, New York, through its representative, William C. Frick, of Deal, N. J., is discussing with the Neptune township committee the advisability of operating a trolley line along the New Jersey shore from Bradley Beach to Long Branch. The trackless trolley has been successfully operated in several European countries, Mr. Frick explained. An overhead wire feeds 4 five-horsepower motors on the big cars that the company would use. The cars seat 35 or 40 people, comfortably. Mr. Frick further explained that any bridges along the route the company took would be cared for by the company at no expense to the inhabitants. The township committee men were chiefly interested in what would the concern do about the roads that they used. It was inevitable that the five ton weight of the busses would wreak havoc on macadam. Mr. Frick didn't make any definite promises. The committee agreed that West Grove needed transportation facilities, as did West Asbury Park. Asked about rates Mr. Frick said that it certainly would cost less than \$1.10 to go to Freehold and return and he didn't think that it would be worth a nickel to go from township headquarters to Cookman avenue. His explanation hinted that the company would go below the universal nickel for short distances. The committee are wary of issuing a franchise to any concern that doesn't intend to start operations in a reasonable time and it is likely that if a franchise is granted the Trackless Trolley Company it will be limited so that it can be nullified if the company doesn't build a line. Chairman Wyncoop agreed to appoint a committee.

Bankruptcy Proceedings.—Schedules in bankruptcy of the United Engineering & Contracting Co. were filed in the United States District Court May 31. The total liabilities of the concern are shown as \$712,266, as against assets of \$673,214. Of the liabilities \$145,250 is secured and \$511,880 is unsecured. Among the unsecured creditors are the Guardian Trust Co., 170 Broadway, \$25,928; the Du Pont de Nemours Powder Co., of Wilmington, Del., and the International Bank, 50 Wall street, \$150,000.

Rubber Tires.—In spite of the fact that overloading is one of the most destructive influences to which tires can be subjected, it is a question whether one automobile owner in ten has any idea of the weight his tires were designed to carry. Experiments have proved conclusively that the life of overburdened tires is considerably shorter than it is where the designated carrying capacity is not exceeded. Therefore the direct effect of overloading is to increase tire expense. In order that motorists may know exactly how much of a load they have a right to expect their tires to carry the Service Bureau of the United States Tire Company recommends the following table of weights in relation to tire sizes:

	Rear weight per wheel.	Front weight per wheel.
28 x 2½.....	225 lbs.	275 lbs.
28 x 3.....	350 "	425 "
30 x 3.....	375 "	450 "
32 x 3.....	375 "	450 "
28 x 3½.....	425 "	500 "
30 x 3½.....	450 "	550 "
31 x 3½.....	475 "	575 "
32 x 3½.....	500 "	600 "
33 x 3½.....	525 "	625 "
34 x 3½.....	550 "	650 "
36 x 3½.....	600 "	700 "
30 x 4.....	625 "	750 "
31 x 4.....	635 "	775 "
32 x 4.....	650 "	800 "
33 x 4.....	675 "	850 "
34 x 4.....	700 "	875 "
35 x 4.....	735 "	885 "
36 x 4.....	750 "	900 "
40 x 4.....	850 "	1000 "
42 x 4.....	900 "	1050 "
32 x 4½.....	750 "	950 "
34 x 4½.....	900 "	1125 "
35 x 4½.....	935 "	1175 "
36 x 4½.....	975 "	1225 "
37 x 4½.....	1010 "	1260 "
38 x 4½.....	1050 "	1300 "
42 x 4½.....	1200 "	1450 "
34 x 5.....	950 "	1200 "
35 x 5.....	1000 "	1250 "
36 x 5.....	1050 "	1300 "
37 x 5.....	1100 "	1350 "
39 x 5.....	1200 "	1450 "
43 x 5.....	1400 "	1550 "
37 x 5½.....	1150 "	1400 "
38 x 5½.....	1200 "	1450 "

The pertinent fact about overloading is that it breaks down the side walls of the casing, laying the foundation for a blowout, which is bound eventually to occur. By the time this happens the casing is so badly damaged that it is beyond repair.

Acetylene Apparatus.—The Oxweld Acetylene Company, which was recently granted a permit for the erection of a factory at 646 Frelinghuysen avenue, Newark, N. J., where it is to manufacture acetylene welding appliances, has added to its land holdings by purchasing 450 ft. of ground adjoining its site. Arrangements are being made for the Pennsylvania Railroad to place a siding on the company's property. The purpose of the latest purchase by the company is understood to be to protect its property from future developments.

Steel Filing Cabinet.—The Whitlock Coil Pipe Company, Hartford, Conn., has begun the manufacture of a new style of steel filing cabinet for the Unit Steel Cabinet Company, New York. The cabinets are built on the unit idea, with a connecting rod so that cabinets of all sizes may be tied together.

Garbage Incinerator.—R. S. Wood, of St. Louis, Mo., representing the McGuire Incinerator Co., Hobart, Okla., recently appeared before the City Council of St. Joseph, Mo., and submitted a plan for the incineration of garbage in that city. His idea was to have an incinerator established in each ward, or in districts that can be laid out to suit conditions. This would greatly decrease the cost of hauling, which in many cities is as great or greater than the cost of final disposal. Mr. Wood stated that one incinerator unit, as made by his company, would burn the garbage for population of from 5,000 to 8,000 inhabitants, and that the cost per unit for the incinerator was about \$2,500. On this basis incinerators for St. Joseph would cost about \$20,000 or \$25,000. It was claimed that no offensive odor would be given off during the combustion.

Street Car Fender.—President McCloskey, of the New Orleans (La.) Street Railway Company, has notified Mayor Behrman that as a result of tests of fenders at the barns of the company he is convinced that the Heer fender has proved the most satisfactory. George A. Parmenter, Boston, Mass., who exhibited a fender, complained of the decision of the company on the ground that the Heer fender was made by one of the New Orleans railway company's employees in the company shops. He said that the tests should have been made on the open streets, not on smooth, level tracks in a car barn. W. J. Gleason, who exhibited a fender made by his partner, H. Young, stated that his fender was the only automatic one, in all other instances the motorman having to operate the device. In one instance, he said, the release levers were pulled too late and the dummy was cut in two.

Traction Engines.—The Heer Engine Company, Portsmouth, O., which is arranging for extensive additions to its plant, will soon be in the market for some special machine tools and other equipment.

Coke and By-Products.—The Kentucky Solvay Coke Company, Ashland, Ky., which was recently incorporated with a capital stock of \$650,000, has elected the following officers: R. G. Hazard, president; E. C. Witherby, vice-president and general manager, and J. G. Hazard, secretary and treasurer, all of Syracuse, N. Y. Mr. Witherby will be in active charge of the construction plans, which will be ready within 30 days. In addition to large coke ovens a by-product plant will be erected.

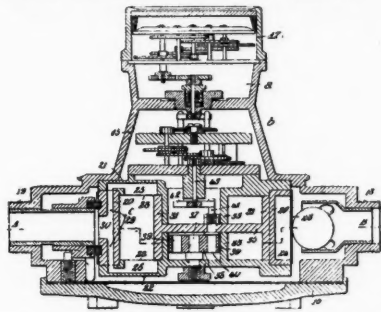
Blaugas.—The Southwestern Blaugas Company, with \$3,000,000 capital stock, has been chartered to build a plant at Kansas City, Mo., the initial unit representing a cost of about \$500,000. The incorporators are Dr. Hugo Lieber, New York; A. A. Godard, Topeka, Kan.; W. F. Rankin, Theodore Gary, F. S. Hastings and A. F. Adams, of Tarkio, Mo. This is the eighth branch of the company, which has headquarters in New York City.

Creosoted Timber.—The Southern Construction Company, Pensacola, Fla., has completed a creosoting plant.

Kyanized Lumber.—The Boardwalk at Atlantic City and Ocean Grove, N. J., has been relaid in large sections this spring, kyanized spruce from the Berlin Mills, Berlin, N. H., being used. The lumber is smooth and handsome in appearance and doubtless will last much longer than ordinary planks.

PATENT CLAIMS

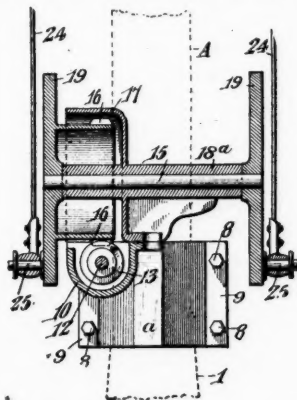
1,026,982. WATER-METER WITH REVOLVING PISTON. Alfred Monard, Paris, France. Serial No. 549,197.



A water meter comprising in combination a main casing provided with inlet and outlet ports, an annular piston casing within said main casing, a wall dividing said piston casing transversely, a piston, relatively smaller than and disposed within said piston casing, having a diaphragm dividing the same into upper and lower chambers and an aperture about the said wall and adapted to permit the movement of the said piston within said piston chamber in liquid tight engagement, the said inlet port of said main casing being in communication with said piston casing at one side of said wall and above and below the said diaphragm of said piston, and the said outlet port of said main casing being in communication with said piston casing at the opposite side of said wall from the said inlet, and above and below the said diaphragm of said piston, a movable member pivotally carried by said main casing concentric to the said annular piston casing and sub-jacent to said piston diaphragm, a second movable member pivotally carried by said main casing concentric to said annular piston casing superjacent to said diaphragm, and a pin carried concentrically by said piston diaphragm and operatively connected to said movable members to movably guide said piston within peripheral contact with said piston cylinder, and to impart movement to said movable members, substantially as and for the purpose set forth.

1,025,049. MECHANISM FOR TRANSMITTING POWER FOR PUMPING PURPOSES. James A. Brown, Cedar Rapids, Iowa, assignor of one-half to Iowa Windmill & Pump Co., Cedar Rapids, Iowa. Serial No. 466,505.

A power-transmitting attachment for pumps comprising a sleeve composed of detachable parts adapted to embrace the barrel of the pump, one part having a laterally-extending bracket, bearings on the bracket, a worm shaft mounted in the bearings, a worm on the shaft disposed between the bearings, a hood or casing sup-



ported on the bracket, a gear arranged in the said casing and meshing with the said worm, a second shaft supporting the gear and arranged at right angles to the first shaft, crank disks mounted on the ends of the second shaft, one of the said disks forming a connection between the gear and the second shaft, crank pins on the disks arranged in alignment, pitmen connected with the crank pins, and a cross head hinged connected with both pitmen and also connected to the piston rod of the pump.

1,026,801. CONCRETE LAMP-POST. Leo G. Haase, Pasadena, Cal. Serial No. 645,769.

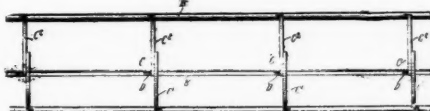
A lamp post, comprising a base section and a shaft section, both sections being formed of a cementitious material, said base section being provided at the upper end thereof with a socket adapted to receive the lower end of the said shaft section and also having a laterally disposed recess therein, said socket being connected to said recess by vertically disposed passages, a reinforcing means embedded in said base section adjacent to said socket adapted to prevent the collapse of the material adjacent to the socketed end of said base section, a hollow permanent core, said shaft section being formed thereon, a hollow tube extending through said shaft section and through the vertically disposed passage into said base section, and terminating in said laterally disposed recess in said base section, said tube being provided on its upper end with a bearing cap, and an adjustable clamping means on the lower end of said tube adapted to force the



tube and cap downwardly to maintain the shaft section in rigid engagement with the base section.

1,026,656. CAISSON. Ralph H. Chambers, New York, N. Y., assignor to the Foundation Co., a Corporation of New York. Serial No. 667,178.

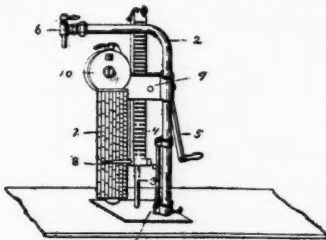
A caisson the sides of which are formed chiefly of concrete and comprise



vertical I-beams with their webs extending transversely and the flanges engaged by the concrete to receive the transverse pressure thereof, a cutting edge extending around the lower edge of the caisson and means independent of said cutting edge for bracing the lower ends of said I-beams.

1,027,151. REGISTER FOR PUMPS. William C. Fritchard, Lancaster, Pa. Serial No. 608,267.

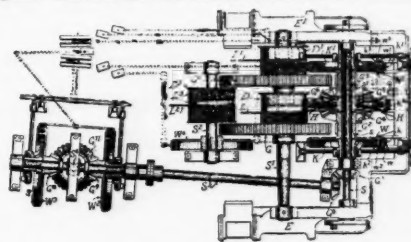
In a device of the character described, the combination with a pump piston rod, a register adjacent thereto, a supporting frame therefor, a pawl pivoted upon said piston rod and adapted to operate said



register at the finish of the discharging stroke of said piston rod, one end of said pivoted pawl adapted to contact with said frame upon the return stroke of said piston to release said means from said register.

1,024,836. MECHANISM FOR OPERATING CRANES. John F. Dowd, Cleveland, O., assignor to The Brown Hoisting Machinery Co., Cleveland, O., a corporation. Serial No. 670,671.

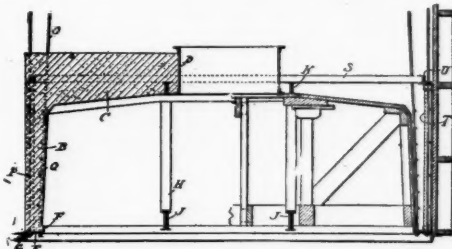
The combination, with a main driving-shaft having sleeves loosely mounted thereon provided with oppositely related gear wheels at the inner ends of the same,



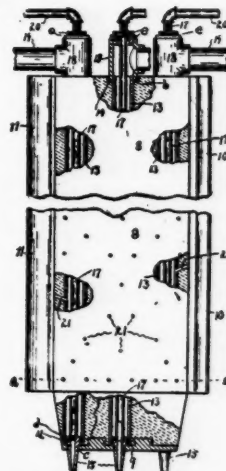
of a brake-wheel loosely mounted on said shaft intermediately of said gear-wheels, suitably mounted drums provided with gear-wheels for rotating the same, diametrically arranged pinions on said brake-wheel in mesh with said gear-wheel, on the sleeves, pinions on said sleeves in mesh, respectively with said gear-wheels on said drums, together with suitable means for severally clutching said sleeves to said driving-shaft, and for braking said brake-wheel against rotatory movement around said shaft, substantially as shown and described.

1,027,176. COLLAPSIBLE FORM FOR CONCRETE CULVERTS. William Burgner, Carthage, Ill. Serial No. 651,739.

A skeleton frame constituting a collapsible frame for concrete culverts and comprising side bars, a plurality of arched ribs, each of said ribs being made in sections secured at their outer ends to the side bars and having their inner ends free to overlap one another, the said inner free ends being provided with registering apertures, locking pins adaptable for engagement through the registering apertures in order to lock the ribs, and a member carrying said locking pins in order that they may be simultaneously withdrawn, said member extending beneath said ends directly thereon whereby to form a supplemental support for the same.



1,026,144. CONCRETE PILING. Edward Bignell, Lincoln, Neb. Serial No. 678,470.



In combination with the elongated body of a pile having a flat bottom, a plurality of nozzles mounted upon and projecting below said bottom, and means to conduct separate columns of water under pressure through the pile, each of said columns communicating with one of said nozzles.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards.

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Montana.....	Miles City.....	June 10.....	Furn. 7,000 vit. paving bricks.....	J. E. Farnum, City Clk.
Oklahoma.....	Poteau.....	June 10.....	Macadam, a number of streets.....	F. J. Kehr, City Clk.
Louisiana.....	Jeanerette.....	June 10, 2 p.m.....	Constrn. paving and concrete sidewalks.....	City Council.
California.....	Glendale.....	June 10, 7.30 p.m.....	Oil, macadam and constrn. curb and sidewalk.....	G. B. Woodberry, City Clk.
Massachusetts.....	Boston.....	June 10, 1 p.m.....	Constrn. roads, walks, etc., at Fort Andrews.....	Capt. R. H. C. Kelton, C. Q. M.
North Dakota.....	Bowdon.....	June 10, 2 p.m.....	Gradv. approaches to bridge.....	O. H. Grampmann, Chm.
West Virginia.....	Wheeling.....	June 10.....	Constrn. pav't.....	Commissioners.
Florida.....	Tallahassee.....	June 10.....	Constrn. 22,000 yds. brick paving.....	J. E. Craig, City Engr.
Kansas.....	Hutchinson.....	June 10.....	Macadam road.....	F. M. Holcomb, Clk. Co. Comm.
Michigan.....	Monroe.....	June 10.....	Constrn. concrete pav't.....	City Clk.
New Jersey.....	Camden.....	June 10, 11 a.m.....	Constrn. asphalt pav't.....	Court House Committee.
Nebraska.....	Kearney.....	June 10, noon.....	Constrn. roadway approach to bridge.....	J. H. Dean, Co. Clk.
Indiana.....	Mount Vernon.....	June 10, 2 p.m.....	Constrn. gravel roads.....	J. P. Haines, County Aud.
Missouri.....	St. Louis.....	June 11.....	Paving alleys; cost, \$70,000.....	Bd. Pub. Imp.
Ohio.....	Akron.....	June 11, 11 a.m.....	Imp. road.....	C. L. Bowers, Clk. County Comrs.
Ohio.....	Petersburg.....	June 11.....	Constrn. macadam highway.....	W. L. Scholl, Township Clk.
Alabama.....	Montgomery.....	June 11.....	Constrn. 3,000 yds. bituminous pav't.....	City Treasurer.
Iowa.....	Greenfield.....	June 11.....	Constrn. 15,000 yds. concrete or brick pav't.....	M. G. McCreight, Town Clk.; Iowa Engineering Co., Clinton, Ia.
Ohio.....	Chardon.....	June 12.....	Constrn. 8,960 lin. ft. bituminated concrete.....	H. A. Cowles, County Aud.
Indiana.....	Connersville.....	June 12.....	Constrn. 62,500 yds. conc. asph., wood block or brick pavg.	L. L. Broadus, City Attorney.
New York.....	Brooklyn.....	June 12, 11 a.m.....	Pavg. with granite, asphalt, iron slag and asphalt block.....	A. E. Steers, Boro. Pres.
Kansas.....	Leavenworth.....	June 12, 11 a.m.....	Constrn. sidewalks, curbs, gutters, etc.....	Major G. G. Bailey, C. Q. M.
Ohio.....	Ironton.....	June 12, noon.....	Constrn. sidewalks.....	F. A. Ross, City Clk.
Pennsylvania.....	Pittsburgh.....	June 13, 10 a.m.....	Imp. half mile highways.....	R. J. Cunningham, County Compt.
Indiana.....	Marion.....	June 13, 2 p.m.....	Constrn. gravel roads.....	E. H. Kimball, Aud.
Indiana.....	Fort Wayne.....	June 13.....	Constrn. 50,000 yds. brick and asphalt pav't.....	W. H. Becker, Sec. Bd. Pub. Wks. County Comm.
Washington.....	Tacoma.....	June 13, 11 a.m.....	Constrn. asphalt, brick or granitoid pav't.....	J. M. Thompson, Comm.
Ohio.....	Stubsenville.....	June 14, noon.....	Constrn. turnpike in Cross Creek township.....	Navy Department.
Washington.....	Bremerton.....	June 15, 11 a.m.....	Constrn. concrete sidewalks.....	W. J. Fries, City Compt.
Wisconsin.....	LaCrosse.....	June 15.....	Constrn. brick, granite top, macadam curbing, etc.....	City Council.
New Jersey.....	Plainfield.....	June 17.....	Macadam. number of streets; cost, \$16,000.....	H. Gaillard, Chm. Comm.
Florida.....	Jacksonville.....	June 17.....	Constrn. 9,000 yds. asphalt block.....	W. S. Keller, State Highway Engr.
Alabama.....	Lafayette.....	June 17.....	Constrn. 5 miles sand clay road.....	A. P. Erickson, County Aud.
Minnesota.....	Minneapolis.....	June 17.....	Furn. 5 cars asph. oil, macad. and graveling road.....	O. B. Leland, County Engr.
Minnesota.....	Winona.....	June 18.....	Constrn. 21 miles macadam.....	J. S. McCullough, Chm. Bd. Pb. Wks.
Wisconsin.....	Fond du Lac.....	June 18, 2 p.m.....	Constrn. cement pav'ts.....	W. S. Keller, State Highway Engr.
Alabama.....	Opelika.....	June 18.....	Constrn. 6 miles top soil road.....	E. M. Bigelow, State Highway Com.
Pennsylvania.....	Harrisburg.....	June 18, 10 a.m.....	Constrn. about 11 miles asph. macad. & 1,300 ft. conc. road.....	T. J. Sheridan, City Clk.
Florida.....	Clearwater.....	June 18, 7 p.m.....	Constrn. 8,220 yds. vit. brick, asph. macad. or crushed rock.....	H. H. Canfield, Vil. Clk.
Ohio.....	Cleveland Hgts.....	June 18, noon.....	Treating roads with oil.....	H. G. Vollmer, City Engr.
Iowa.....	Burlington.....	June 20.....	Constrn. brick or wooden pav't.....	C. H. Wells, City Engr.
Ohio.....	Newark.....	June 20 (about).....	Constrn. 8,590 sq. yds. pav't and 4,810 lin. ft. curbing.....	C. A. Blatchley, County Aud.
Indiana.....	Crown Point.....	June 22, noon.....	Constrn. 2 miles gravel road.....	W. S. Keller, State Highway Engr.
Alabama.....	Chatom.....	June 24, 3 p.m.....	Constrn. 8 miles top-soil road.....	R. A. Hollister, Chm. Bd. Pub. Wks.
Wisconsin.....	Oshkosh.....	June 24, 2 p.m.....	Constrn. macadam roadway.....	R. J. Cunningham, County Compt.
Pennsylvania.....	Pittsburg.....	June 25, 2 p.m.....	Constrn. creosoted wood or carbolineum roadway on bridge.....	W. S. Keller, State Highway Engr.
Alabama.....	Carrollton.....	June 26, 4 p.m.....	Constrn. 4 miles sand clay roads.....	R. O. Woodruff, Chm. Bd. Pb. Wks.
Michigan.....	Bay City.....	June 27.....	Pavg. several streets.....	L. W. Sand, County Aud.
Indiana.....	Greensburg.....	June 28, 1 p.m.....	Constrn. gravel roads.....	H. F. C. Heidtmann, County Surv.
Oregon.....	Fossil.....	July 3, 1 p.m.....	Constrn. roads and bridges.....	
SEWERAGE				
Ohio.....	Circleville.....	June 10.....	Constrn. 7,900 ft. 8 to 18-in. pipe sewer.....	L. Schneider, Dir. Public Service.
Ohio.....	Wauseon.....	June 10, 7.30 pm.....	Constrn. sewerage system.....	L. H. Deys, Vil. Clk.
Indiana.....	Indianapolis.....	June 10, 10 a.m.....	Constrn. sewage disposal plant for hospital.....	W. T. Patten, County Aud.
New Jersey.....	South Amboy.....	June 11.....	Constrn. sewer system.....	R. M. Mack, City Clk.
Minnesota.....	Morris.....	June 11, 8 p.m.....	Constrn. about 3,000 ft. 8-in. sewer pipe, etc.....	C. B. Burpee, City Clk.
Pennsylvania.....	Philadelphia.....	June 12, noon.....	Reconstructing old sewers.....	M. L. Cooke, Dir. Pub. Wks.
Illinois.....	Chicago.....	June 13, noon.....	Excav. harbor and rip-rapping channel.....	Sanitary Dist. Comrs.
Ohio.....	Canton.....	June 15.....	Extend. storm sewer, Liberty street.....	P. H. Weber, City Engr.
Louisiana.....	Opelousas.....	June 15 (about).....	Constrn. sewer system.....	W. D. Kirkpatrick, Engr., Birming'm.
Ohio.....	Newburg.....	June 15.....	Constrn. sewers.....	J. Shimek, Clk.
Idaho.....	Sand Point.....	June 15.....	Constrn. 23,000 ft. sewers.....	W. J. Costello, Clk.
Montana.....	Lewistown.....	June 15, 3 p.m.....	Constrn. 10,500 ft. of 12 to 27-in. vitrified pipe, etc.....	J. S. Marshall, Mayor.
North Carolina.....	Wilmeton.....	June 18.....	Constrn. sewer system.....	F. F. Pillet, City Engr.
New York.....	Schenectady.....	June 19, 3 p.m.....	Constrn. 23,900 ft. vit. tile & 1,816 ft. c. i. pipe sewer, etc.....	F. E. Johnson, Sec'y Bd. Contract.
Iowa.....	Burlington.....	June 20.....	Constrn. concrete arch sewer.....	H. B. Volmer, City Engr.
Louisiana.....	New Orleans.....	June 20, noon.....	Constrn. power house and canals.....	F. S. Shields, Sec'y Water Bd.
Louisiana.....	Opelousas.....	June 25, 10 a.m.....	Constrn. 10 miles 6 to 18-in. pipe sewers & disposal plant.....	W. G. Kirkpatrick, Engr., Birming-ham, Ala.
Alabama.....	Birmingham.....	June 25.....	Constrn. 10 miles 6 to 8-in. pipe sewers & disposal plant.....	Comm. First District.
Arkansas.....	Russellville.....	July 2.....	Constrn. sewer system; cost, \$30,000.....	J. T. Bullock, Mayor; E. A. Kingsley, Engr., Little Rock.
Ohio.....	Cambridge.....	July 6.....	Constrn. 8,700 ft. clay pipe and 600 ft. c. i. pipe sewer; also ejector.....	K. M. Cosgrove, City Engr.
Iowa.....	Burlington.....	July 20.....	Constrn. concrete arch sewer; cost, \$50,000.....	H. G. Vollmer, City Engr.
WATER SUPPLY				
Canada.....	Vernon, B. C.....	June 10, 5 p.m.....	Furn. 27,000 ft. 4 and 6-in. c. i. pipe.....	D. G. Tate, City Clk.
Montana.....	Shelby.....	June 10.....	Constrn. of water works, cost \$20,000.....	J. E. Nolan, City Engineer.
Oklahoma.....	Fort Sill.....	June 10, 10 a.m.....	Constrn. 10-in. main, elec. motor, pump & water purify. appa.	G. M. Cralle, Constrn. Q. M.
New York.....	Brooklyn.....	June 12, 2 p.m.....	Repair, pumping engine and laying water mains.....	H. S. Thompson, Water Comm.
Dist. Columbia.....	Washington.....	June 12, 3 p.m.....	Furn. 10,000 5/8 and 250 3/4-in. water meters.....	District Commissioners.
New York.....	Geneseo.....	June 15.....	Constrn. reservoir and mains.....	W. A. Wadsworth, Pres. Comm.
Ohio.....	Newburg.....	June 15.....	Constrn. water mains.....	J. Shimek, Clk.
West Virginia.....	Elkins.....	June 15, 4 p.m.....	Repair, reservoir.....	George Henry, City Clk.
North Dakota.....	Beach.....	June 15.....	Constrn. water works; cost, \$25,000.....	M. A. Egan, City Aud.
Ohio.....	Grand View Hts.....	June 17.....	Constrn. water and sewer pipe.....	J. Hinterschied, Vil. Clk.
Wisconsin.....	Elkhorn.....	June 17, 10 a.m.....	Constrn. 11 x 30-ft. circular concrete reservoir.....	D. W. Stanford, Supt.
New York.....	New York.....	June 17, 1.30 p.m.....	Furn. water meters.....	M. G. Zalinski, Q. M.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
FIRE EQUIPMENT				
New York	Wolcott	June 19	Constrn. 6 miles mains, stand pipe, reservoir, pumping station, etc.	L. W. Knapp, Vil. Clk.
Rhode Island	Newport	June 22, 11 a.m.	Constrn. fresh water supply pipe under water	H. R. Stanford, Chief of Bureau.
Spain	Madrid	July 31	Constrn. filtration and purification plant	Canal Commission.
Ohio	Bexley	July 1 (about)	Constrn. water and sewer system	F. D. Chamberlin, Mayor.
Louisiana	New Orleans	July 8, 3 p.m.	Furn. sluice gates	F. S. Shields, Sec. Sew. & Wat. Bd.
LIGHTING AND POWER				
Canada	Vernon, B. C.	June 10	Furn. one 125-KW. generator switchboard, etc.	D. G. Tate, City Clk.
Minnesota	Olivia	June 10	Furn. one 75-HP. oil engine	J. Flaschenreim, Vil. Recorder.
Mississippi	Jackson	June 11	Furn. engine, generator, switchboard, etc.	J. G. Robertson, City Clk.
Kentucky	London	June 11	Furn. air lift pumping plant	Superv. Archt., Washington, D. C.
Canada	Moose Jaw, Sask.	June 14, noon	Furn. 50 ornamental light standards	City Comm.
Minnesota	Coleraine	June 15	Constrn. lighting system	W. W. Hunter, City Clk.
Connecticut	New London	June 15, 2 p.m.	Furn. generators, condensers, etc.	A. E. Waldron, Capt. Engrs.
Georgia	Fort Oglethorpe	June 15, 11 a.m.	Constrn. electric lighting system	Capt. Guy Cushman, C. Q. M.
Louisiana	New Orleans	June 20, noon	Constrn. power house	F. S. Shields, Sec'y.
New York	Hudson	June 20, 8.30 p.m.	Light. streets for 5 years	Lighting Comm.
Illinois	Champaign	July 1	Constrn. street lighting system, including 64 standards	N. M. Woodward, City Clk.; J. R. Crevath, Engr., Chicago.
New York	Walden	July 1 (about)	Furn. gas plant for lighting and heating	Ezra Young, Vil. Clk.
Florida	Tampa	June 12	Furn. 2 motor comb. hose and chemical trucks	W. M. Matthews, Sec'y Fire Comm.
Minnesota	Winona	June 17	Furn. motor comb. hose and chemical truck	City Recorder.
New York	New York	June 17, 1.30 p.m.	Furn. fire extinguishers	M. G. Zalinski, O. M.
Ohio	Akron	June 25, noon	Furn. auto apparatus	D. P. Stein, Dir. Pub. Safety.
BRIDGES				
Missouri	Jefferson City	June 10	Constrn. concrete viaduct	P. C. Harding, City Engr.
New York	Malone	June 10, 1 p.m.	Constrn. reinforced concrete arched bridge	S. A. Howard, Reservation Supt.
Pennsylvania	Lewistown	June 10, 7.30 p.m.	Constrn. 2 reinforced concrete bridges	I. H. Saxton, Boro. Sec'y.
Tennessee	Hill City	June 11, 10 a.m.	Constrn. concrete bridge	W. L. Dodds, County Engr.
New York	Schoharie	June 12, 2 p.m.	Constrn. concrete bridge	F. Rickard, Town Clk.
Ohio	Cleveland	June 15	Constrn. concrete bridge and culverts	G. S. Goldenbogen, Clk.
Ohio	Cleveland	June 19	Constrn. bridgework	J. F. Goldenbogen, Co. Clk.
Ohio	Cleveland	June 26, 11 a.m.	Constrn. bridges and culverts	J. F. Goldenbogen, County Clk.
MISCELLANEOUS				
Indiana	Marion	June 11	Bldg. market house & civic hall	F. R. Heck, City Clk.
Pennsylvania	Philadelphia	June 12, noon	Furn. bleaching powder, paint, cement, fire plug fittings, wooden ladders, pump well, pipes	M. L. Cooke, Dir. Pub. Wks.
New Jersey	Paterson	June 12, 4 p.m.	Bldg. rubble concrete wall	Paterson Park Comm.
Ohio	Akron	June 12, noon	Bldg. public comfort station	R. M. Pillmore, Dir. Pub. Serv.
Pennsylvania	Pittsburgh	June 21, 10 a.m.	Furn. 3 automobile runabouts	G. W. Gerwig, Sec'y.
Porto Rico	San Juan	June 22, 11 a.m.	Constrn. 2 steel towers at radio station	Navy Dept., Washington, D. C.
Arizona	Phoenix	June 25	Furn. concrete mixer	Board of Control.
Canada	Saskatoon, Sask.	June 25	Furn. 70-ton incinerator	City Commissioners.
Dist. Columbia	Washington	June 29, 11 a.m.	Constrn. reinforced concrete floor, balcony, stairs, etc., at Fort Lafayette, N. Y.	Navy Department.
Texas	Dallas	July 15, 2 p.m.	Constrn. city hall; cost, \$400,000	City Commissioners.

STREET IMPROVEMENTS

Birmingham, Ala.—Election will be held July 1 for voting on issuance of bonds in amount of \$100,000 for completing good roads system.

Los Angeles, Cal.—City Council has authorized lowering of grade on Broadway tunnel, which will cost about \$85,000.

San Francisco, Cal.—Property owners on Eighth st. have petitioned Supervisors to raise roadway of that thoroughfare to official grade from Market to Townsend st. and to pave it with basalt blocks set in concrete foundation, and to widen roadway by reducing width of sidewalks so as to make them uniform.

San Jose, Cal.—Plans and specifications for improvement of roadway of Fifth st., between Santa Clara and St. James, with concrete base of 4½-in. and a bituminous surface of 1½-in., have been adopted and resolution of intention was given first reading. Bids for improvement of Sixth st., from Jackson to Taylor, have been registered, and City Engineer was instructed to prepare new specifications with concrete base of 4½-in. and surface of 1½-in. Resolution of intention to improve roadway of San Fernando st., from Orchard to Delmas, has been given first reading.

San Jose, Cal.—Carrying out policy adopted by Board of Supervisors for improvement of county roads, J. G. McMillan, County Surveyor, has been instructed by that body to prepare plans and specifications for regrading and macadamizing Alum Rock ave., from King to Mt. Hamilton rd., distance of about three miles, and also for improvement of Santa Clara and Los Gatos rd., from Mission Town to point one-half mile south of Campbell, distance of between four and five miles.

New Britain, Conn.—Improvement of various streets is being discussed.

Windsor, Conn.—Resurfacing of macadam road, between Hartland line and Windsor Locks is being considered.

Washington, D. C.—Bill has been passed by Senate directing extension of New Hampshire ave. on straight line to District boundary, passing directly through center of Chillum Castle Heights.

Atlanta, Ga.—Regrading of Peachtree st. from Harris to point 200 ft. beyond Baker st., and grading of West Peachtree st. for

200 ft., is being considered. Several side streets will also be regraded and repaved.

Augusta, Ga.—There has been joint meeting of Finance and Street and Drains Committee of City Council for purpose of considering street paving and street opening. Commissioner of Public Works was authorized to prepare plans and specifications for paving of 10th st., from Broad to Ellis.

Cornelia, Ga.—Two great highways, one running from Greenville, S. C., through Stephens, Habersham, Hall, Gwinnett and Banks Counties, and finally ending in Peachtree rd., Atlanta, and other connecting Cornelia, Ga., with Asheville, N. C., after touching at Tallulah Falls, Rabun Gap and the Tennessee Valley, are being planned.

Washington, Ga.—Bond election has been called on June 26 by Mayor and Council of Washington to determine wishes of qualified voters regarding issuance of \$30,000 for paving purposes.

Fort Wayne, Ind.—According to reports of viewers appointed by Commissioners to ascertain estimated cost of improving 20 miles of roads in Lafayette Township, work will cost \$3,344.43 a mile, or total of \$73,577.43. This sum is divided among various roads as follows: Indianapolis rd., \$21,655.80; Huntington rd., \$20,695.40; Center rd., \$14,150.60; Sheldon rd., \$8,467.13; Abolt rd., \$8,608.50.

Muncie, Ind.—City Engineer Deardorft has submitted to Board estimates of proposed street improvements.

Richmond, Ind.—Oliver H. Scantland and 50 farmers in Green and Perry Townships have filed petition in office of County Recorder Robbins asking for improvement of road almost three miles long, running from boundary line of Perry and Green Townships to Richmond and Economy pike. Petition asks that the County Commissioners have thoroughfare paved and drained.

Richmond, Ind.—Petition has been filed with County Auditor Bowman asking for improvement of West Fifth st., from Linden ave. to intersection of Richmond and Williamsburg pike, under three-mile act. Petition asks that road be macadamized and that cement curb and gutters and sidewalks be constructed.

South Bend, Ind.—Contracts for paving of number of alleys will shortly be awarded by Board of Public Works. Im-

provements are for first alley south of Lake Shore Railroad, from Scott to Chapin sts.; first alley north of Railroad st., from Scott to Taylor sts., and first alley north of Monroe st., from Michigan to Main sts.

Cedar Rapids, Ia.—Paving of Vernon Heights sts. is being considered.

Des Moines, Ia.—Bitulithic paving promoters have won out in their fight in City Council for paving of Ingersoll ave., from 28th to 38th sts., with new paving material. Councilman Myerly introduced resolution directing Mayor Hanna and City Clerk Susong to advertise for bids. Resolution passed unanimous vote of Council. Council has also ordered bitulithic paving on 43d st., from Forest ave. to University ave. Asphalt was ordered on 32d st., from University to Carpenter aves.

Glasgow, Ky.—Citizens of this county have raised \$11,500 for purpose of repairing Glasgow and Topkinsville rd. to Monroe County line.

Jefferson, Ia.—Construction of 34 blocks of cement walks has been ordered.

Marshalltown, Ia.—Resolution has been passed for paving of nine blocks with concrete.

Louisville, Ky.—Another big lot of sidewalk construction will be let by Board of Public Works on June 6 when bids for construction of sidewalks with granitoid to cost approximately \$17,000 will be opened.

Louisville, Ky.—Ordinances have been adopted for improvement of various city streets.

Louisville, Ky.—Park Board has approved plans for 2,000 ft. of roadway, from Chestnut st. to northern boundary of Shawnee Park connecting with Fontaine Ferry Park drive. This is to be connecting link in Eastern and Western parkway system. Cost will be between \$8,000 and \$10,000.

Abita Springs, La.—Police Jury has acted favorably on petition by citizens to create Tenth Ward by dividing Third and part of Fourth Ward, object being to build good roads here.

Lynnfield, Mass.—Repaving of Lynnfield st. has been authorized.

Malden, Mass.—Widening of upper square at cost of \$28,000 and laying out and extension of Middlesex st. to Commercial st. are being considered.

Baltimore, Md.—Board of Estimates is

urged to approve plan of Major Joseph W. Shirley to widen Pennsylvania ave. and Reisterstown rd., from Fulton and Pennsylvania aves. to Kate ave.

Bozeman, Mont.—Central ave., Bozeman's main residence street, is to be paved in near future with macadam base of shale rock and top coat of some coal tar or bituminous product.

Hagerstown, Md.—It is stated that road from Boonsboro to Rohrsersville, Brownsville and Weverton, of about 12 miles, will shortly be constructed.

Princess Anne, Md.—At town election voters will decide whether or not to issue \$10,000 worth of bonds for street improvements.

Salem, Mass.—Committee on Streets of city of Salem has recommended that Webb st. be extended to East Collins st.

Fulton, Mo.—Commissioners of this district will shortly award contracts for grading and graveling of several highways. W. R. Heagher, Chief Engineer.

St. Louis, Mo.—Board of Public Improvements has approved drafts of following ordinances for brick alley improvements aggregating \$97,060.

Camden, N. J.—Number of property owners on Market and Cooper sts., between Third and Fourth, will present to City Council petition to open 20-ft. wide streets in this section.

Elizabeth, N. J.—Ordinances have been passed for paving of various streets.

Longport, N. J.—City will issue \$6,000 worth of bonds for paving of Atlantic ave.

Newark, N. J.—Ordinances have been passed providing for paving of Coeyman st., Nutria st. south and Runyon st.

Oaklyn, N. J.—Borough Council has adopted resolutions favoring brick gutters, cement curbing and macadam streets.

Perth Amboy, N. J.—Aldermen desire to have High st. and Hall ave. oiled.

Perth Amboy, N. J.—New arrangements have been made for improved connecting thoroughfare between State st. and Amboy ave. just south of Inslee st. Some of Aldermen estimate extension will cost about \$40,000.

Roosevelt, N. J.—Oiling of main streets has been authorized.

Trenton, N. J.—Extensive street paving is recommended by Director of Streets J. Ridgway Fell.

Westfield, N. J.—Ordinance has been passed for macadamizing of Lenox ave.

Albany, N. Y.—Bonds amounting to par value of \$25,950,000 will be sold by State Comptroller Sohmer on June 6. Of these \$17,000,000 are for canal improvement purposes, \$8,000,000 for highway improvements and \$950,000 for Saratoga reservation.

Albany, N. Y.—Among good roads plans which have been approved by State Highway Department were number in Erie and adjacent counties. Approved plans to be immediately advertised aggregate 900 miles of highway the cost of which is estimated at \$12,000,000. Bids for contemplated roads will be received by Highway Department during week of June 3. Roads to be advertised of interest to Buffalo are: Erie County, Rd. No. 1036, Tonawanda Creek; Rd. No. 1037, Gowanda Village; Rd. No. 5071, Lackawanna City; South rd., 2-R-2, Buffalo-Hamburg; Rd. No. 1038, Water Valley-Clarksburg, Part 1; Rd. No. 1035, Holland-Glenwood; Rd. No. 1034, Chafee-Sardinia, Allegany County, Rd. 964, Friendship-Bolivar, Part 1; Rd. No. 905, Obi-Cuba, Cattaraugus County, Rd. No. 1024, Gowanda Village; Rd. No. 5264, Allegany-Vandalia; Rd. No. 695, Otto-Cattaraugus; Rd. No. 697, East Otto, Part 2; Rd. No. 5258, Little Valley-Randolph, Part 3; Rd. No. 5265, Salamanca-Little Valley, Chautauqua County, Rd. No. 5245, Bemus Point-Dewittville; Rd. No. 5263, Dewittville-Mayville; Rd. No. 5262, Fredonia-Silver Creek, Part 1, Niagara County, Rd. No. 757, Gasport-Hariland; Rd. No. 758, Olcott-Lockport, Part 1; Rd. No. 5305, Niagara Falls-Sanborn; Rd. No. 759, Olcott-Lockport, Part 2; Rd. No. 5306, Lewiston-Youngstown; Rd. No. 832, Mountain Ridge rd.; Rd. No. 1045, Cambria-Lockport, Livingston County, Rd. No. 1030, Avon Village; Rd. No. 5273, Caledonia-Avon; Rd. No. 718, Genesee-Piffard; Rd. No. 5272 and Rd. No. 5270, Portage-Mount Morris, Parts 1 and 3; Rd. No. 828, Huders Corners-Springwater town line; Rd. No. 5281, Portage-Mount Morris, Part 2; Rd. No. 5302, Avon-Lima, Steuben County, Rd. No. 5255, Almond-Hornell; Rd. No. 5254, Hornell-Arkport; Rd. No. 5252, Jasper-Addison, Wyoming County, Rd. No. 976, Jasper Village-Wales.

Bath, N. Y.—Special village election has resulted in Bath taxpayers authorizing issue of \$30,000 village bonds as means of providing money wherewith to pave portions of East Steuben st., Liberty, West Washington and West Morris sts., in con-

nection with State road work that will be done in Bath this summer.

Brooklyn, N. Y.—Petition to lay sidewalks on Main st., Port Washington, has been approved by North Hempstead Town Board. Town superintendent has been authorized to advertise for bids.

Brooklyn, N. Y.—Widening of King's Highway is being discussed.

Brooklyn, N. Y.—Topographical Engineer C. B. Moore has submitted to Borough President Maurice E. Connolly of Queens, map and plan for magnificent boulevard almost nine miles in length and 150 ft. in width to connect Brooklyn by direct route with Forest Park, Jamaica and Nassau and Suffolk Counties.

Brooklyn, N. Y.—Bids have been opened for 12 highway and sewer contracts in Borough of Queens, lowest bids aggregating \$187,288. There were 10 bids on highway work. Lowest bidders and amount of bids were as follows: For regulating, grading, curbing and laying sidewalks in Doscher ave., from Halsey st. to Elm ave., Ridgewood, Henry E. Korde, \$1,044. For paving with asphalt blocks on concrete foundation, Ninth ave., from Jackson to Graham, Long Island City, Hastings Paving Co., \$17,115. For regulating, grading, curbing and repaving with sheet asphalt, on a concrete foundation, Gates ave., from borough line to Woodward ave., Ridgewood, Barber Asphalt Co., \$16,833. For regulating, grading and laying sidewalks on Beidler st., from Flushing ave. to a point 110 ft. south and fencing in vacant lots on Ralph st., Burger Contracting Co., \$275. For regulating, grading and laying sidewalks on north side of Bayview ave., from Forest ave. to the Strand, Peach Bros., \$2,029. For regulating, grading and curbing Prospect ave., from Metropolitan ave. to Madison st., Ridgewood, Newman & Carey, \$7,260. For regulating, grading, curbing and laying sidewalks and crosswalks in Hamilton st., Long Island City, from Paynter ave. to Webster ave., Astoria Contracting Co., \$6,296. For regulating and grading Sunswick st., Long Island City, Paynter Works Contracting Co., \$8,750. For curbing and laying sidewalks on east side of Benedict ave., from Syosset st. to a point 40 ft. south; laying sidewalks on east side of Jamaica ave. to Grand st.; on northerly and southerly sides of Jamaica ave., from Brooklyn line to Rockaway Beach Division of the Long Island Railroad, all in Woodhaven, Clancy & Van Alst, \$1,227. For furnishing and delivering road surfacing material, tar or asphalt, 40,000 gals., delivered in barrels, 60,000 gals. spread upon the road, Barrett Manufacturing Co., \$9,220.

Canistota, N. Y.—Canistota taxpayers have voted overwhelmingly in favor of paving streets. Board of Village Trustees called special election to vote on question of bonding village for \$18,000 to pave East and West Main and Greenwood sts. practically their entire length. Business section on all three streets will be paved with brick and balance with macadam.

East Syracuse, N. Y.—Village Board has voted to purchase street sprinkler.

Hornell, N. Y.—It is expected State road between Hornell and Canistota will be completed by September. At election held in Canistota it was voted to bond village for \$18,000, village's share in State road construction within village limits.

Mechanicville, N. Y.—Engineer has submitted following estimates of cost of paving Canal st., from Park ave. to Burke st., Second ave., both north and south, and Viall st., from depot square to Saratoga ave. Second ave., brick \$31,801.50; engineering expenses, \$2,924.27; contingent expenses, \$1,827.67; total, \$36,553.44. Macadam, with bituminous binder, total cost, \$24,553.44; Viall st., brick, total cost, including engineering and contingent expenses, \$13,794.83; macadam with bituminous binder, \$9,691.38; Canal st., brick, \$5,598.47; macadam with bituminous binder, \$4,008.47.

Newburgh, N. Y.—Paving of Broadway, from Mill to West sts., is being considered.

Newburgh, N. Y.—Use of oil on streets is being discussed.

Niagara Falls, N. Y.—Request of Common Council that Board of Public Works investigate cost of paving Main st., from Fourth st. to Linwood ave., has been received and filed by Board.

Penn Yan, N. Y.—Board of Trustees has accepted plans of State Department for paving Main and East Main sts and fixed amount of bond to be required from contractors at \$60,000.

Schenectady, N. Y.—Board of Contract and Supply has been asked by City Engineer W. Thomas Wooley to readvertise for grading of Baker ave. and laying concrete walks about Howe School in that street. Bids to be received at first meeting in June. Contract will shortly be

awarded for 5,000 sq. yds. of patching and resurfacing of sheet asphalt pavement.

Syracuse, N. Y.—Bids have been received by Board for restoring brick and asphalt pavements where they have been torn up for Onondaga Creek and Harbor Brook intercepting sewers and for lateral sewers. C. T. Hookway was lowest bidder for restoring brick pavements at \$1.63 a sq. yd., and Warner-Quinlan Asphalt Co. was lowest bidder for restoring asphalt pavement at little in excess of \$2 a sq. yd.

Syracuse, N. Y.—Contract will probably be awarded this season for sprinkling streets with oil.

Akron, O.—Petition for improvement of Westwood ave., between Crosby and Maple sts., by brick paving, has been referred to Street Committee; also petition for improvement of Rhodes ave., by paving, grading and sidewalks, between Chestnut st., and the north line of lot No. 46.

Akron, O.—County Commissioners have sold \$25,000 in bonds for completion of county's part of Manchester rd. improvement to First National Bank of Cleveland.

Dayton, O.—Bids will be received at office of City Auditor until 12 o'clock noon, June 21, for sale of bonds in amount of \$45,000 for purpose of providing money with which to pay for repair and improvement of existing streets of city as follows: Asphalt streets, \$25,000; brick streets, \$15,000; gravel streets, \$5,000. G. W. Bish, City Auditor.

Youngstown, O.—Bids will be received at office of City Auditor, West Boardman st., for purchase of \$11,635 Walnut st. paving bonds. D. J. Jones, City Auditor.

Youngstown, O.—It has been decided to proceed with grading of Weaver rd. Street will be widened 10 ft. making it a 50-ft. roadway from Mahoning ave. to Richland ave.

Altoona, Pa.—Select Council at special meeting has passed two ordinances providing for special election to secure approval of voters for loan of \$150,000 for resurfacing of paved streets and for sewage disposal plant.

Collegeville, Pa.—Collegeville. Council is considering refilling of Main st.

Erie, Pa.—Mayor Stern has sent communication to Councils pleading for improved streets and signed Himrod ordinance transferring \$3,000 to Engineer's Department for street repair purposes.

Franklin, Pa.—Matter of specifications for new paving on 13th st., between Lake Shore depot and bridge, and on Liberty st., from First to Fourth, are being discussed.

Johnstown, Pa.—Ordinance authorizing \$30,000 bond issue for paving will be introduced into Council.

McKeesport, Pa.—Bills to improve Gray ave., between Ninth and 11th aves., and for sewer on 13th ave., from Jenny Lind st. to point 285 ft. east, have been given third and final readings and passed.

McKeesport, Pa.—Two resolutions have been introduced, one asking for paving of Huey st., between Huey and Centennial sts., and one asking for paving of Centennial st., between 14th and 15th aves., signed by majority of property holders.

South Bethlehem, Pa.—Plans have been submitted for grading Church st., between Oak and Centre sts., by Borough Engineer Neumeier.

Woonsocket, R. I.—Petition from residents of Woodland rd. to macadamize that street has been recommended and referred to Finance Committee, which has resolution calling for appropriation of \$6,200 for that purpose.

Springfield, S. Dak.—Special election will shortly be called for purpose of voting bonds in sum of \$2,500 for grading of streets and extension of municipal water works system.

Chattanooga, Tenn.—City of Chattanooga has sold paving bonds in amount of \$8,866.96 to firm of Seasongood & Meyer, Cincinnati, O.

Knoxville, Tenn.—City Commissioners have instructed Recorder to advertise for bids for \$15,000 street widening bonds. Proceeds of these bonds will be used for opening Jackson ave., from Broadway to L. & N. freight depot.

Park City, Tenn.—Movement is on foot in Park City to secure oiling of every main thoroughfare of that municipality.

Dallas, Tex.—Delegation of property owners and other citizens interested in proposed improvement presented city officials with numerous letters and strong petition, urging that Lemmon ave. be paved with bitulithic pavement.

Fort Stockton, Tex.—Petition for purpose of voting \$100,000 road bonds is being circulated and will be submitted to Commissioners' Court.

Sherman, Tex.—Continental and Commercial Trust and Savings Bank, Chicago, has purchased \$400,000 worth of Sherman precinct good roads bonds.

Temple, Tex.—Resolution has been adopted providing for paving of Central ave., from Second st. to M. K. & T. passenger terminal at 14th st.

Provo, Utah—County has decided to improve road from Alpine over mountain to county line near Draper.

Portsmouth, Va.—Engineer Sykes, of Sixth Ward, is busy getting plans and proposals in shape for paving of High st. extended, and it is expected that bids will be asked for this work in next few days. It is proposed to grade, curb and gutter High st., from Chestnut st. to Confederate ave.

Richmond, Va.—An appropriation of \$2,000 to complete certain work of grading and improving Washington Square has been recommended to Council for adoption by Committee on Finance.

Aberdeen, Wash.—Resolution for paving of Broadway and River st. is under consideration. Chas. W. Ewart, City Engineer.

Chehalis, Wash.—City improvements, including street paving and grading, city and county work that will give miles more of good roadway, are being planned.

Puyallup, Wash.—City Council has adopted resolutions approving plans and specifications filed by engineer for paving of Railway ave., from present paved district to city limits, and also for paving South Meridian st. to foot of hill, both with 16-in. hard surface paving. Resolutions authorizing clerk to advertise for bids have also been adopted.

Tacoma, Wash.—County Commissioners has authorized another call for bids for construction of permanent highway No. 1, eight miles long, from near North Puyallup to King County line.

Ashland, Wis.—Construction of about 12 miles of new road is being planned.

Hurley, Wis.—County Board has voted \$35,000 bond issue for road improvement.

Superior, Wis.—Resolution providing for paving of North Eighth st., from Hammond ave. to Catlin ave., and Catlin ave., from North Eighth st. to Winter st., has been passed at meeting of City Commission. Streets will be paved with concrete for width of 24 ft.

CONTRACTS AWARDED

Oxford, Ala.—By City Council, to Oxford Paving Co., for paving sidewalks on Main, Choctaw, Snow and McKibbin sts. Work will be started at once and will be completed in about 90 days.

Hillsboro, Cal.—By Board of Trustees, for paving with asphalt and macadam principal roads in highway system, to Barber Asphalt Paving Co., for \$118,000.

Los Angeles, Cal.—For paving Wall st., to Fairchild, Gilmore, Wilton Co., for \$25,483.

Oakland, Cal.—For improvement of Market st., to C. W. Cross, at following prices: Grading street (cutting), 1½ cts. per sq. ft.; macadamizing, 9½ cts. per sq. ft.; curbing with redwood, 12 cts. per lin. ft.; gutters (concrete), 14 cts. per sq. ft. F. R. Thompson, City Clerk.

Oakland, Cal.—By City Council, for improving of Harrison st., to Ransome-Crummey Co., at following prices: Grading street (cutting), 3 cts. per sq. ft.; grading street (filling), 3 cts. per sq. ft.; curbing with granite, \$1.46 per lin. ft.; gutters with basalt blocks, 46 cts. per sq. ft.; asphalt pavement, 21 cts. per sq. ft. Frank R. Thompson, City Clerk.

San Jose, Cal.—By Common Council, for improvement of Santa Clara st., from 12th to 14th. Bidders were City Improvement Co., Barber Asphalt Paving Co. and Ransome-Crummey Co. Latter was lowest bidder and was given contract at 20 cts. pr sq. ft. for pavement, 17 cts. per sq. ft. for gutters, 75 cts. each for catch basins, and \$1 a ft. for pipe drains.

Jacksonville, Fla.—By Board of County Commissioners, for furnishing seven-ton road roller, to Buffalo Pitts Steam Road Roller Co., at \$1,850.

Lakeland, Fla.—By City, for street paving, to Southern Asphalt & Construction Co., of Lakeland.

Augusta, Ga.—By City, for paving, as follows: To W. F. Bowe, Augusta, for 12,500 yds. Belgian block pavement, \$2.53 per sq. yd. block paving; to Georgia Engineering Co., Augusta, Ga., 12,500 yds. vitrified brick, \$2.04 per sq. yd., and to Creosoted Wood Block Paving Co., New Orleans, La., for 5,000 sq. yds. of creosoted wood block, at \$2.85 per sq. yd.

Fitzgerald, Ga.—By City, to Alabama Paving Co., to construct 30,000 sq. yds. or 10½ blocks of streets.

Waynesboro, Ga.—For cement paved sidewalks, to A. H. McDaniel, at \$20,000.

Belleville, Ill.—By Board of Local Im-

provements, for paving Switzer st., to Hoeffken Bros., of Belleville, for \$6,436.

Du Quoin, Ill.—For vitrified brick paving, to Reeb Bros., Belleville, for \$80,013.

Elgin, Ill.—To Logan & Gieritz, of Elgin, for paving in Elgin, at \$30,000.

Jerseyville, Ill.—By City, three contracts for 13,000 sq. yds. of brick paving on 4½-in. concrete base, to Haves & Sons, Cairo, Ill., at \$1.68, \$1.71 and \$1.74, respectively; also for 11,000 lin. ft. of combined curb and gutter, at 42, 43 and 45 cts. Slightly higher bids were received from Chas. Degenhardt, Alton, Ill.; Dunlap & Co., Maupin & Curdie, Alton, Ill., and Granite City Lime & Cement Co., Granite City, Ill. E. B. Shafer, City Engineer.

Rochelle, Ill.—By City, for 32,000 sq. yds. paving, to A. E. Rutledge, of Rockford, for \$77,197. Other bids received on above work as follows: C. A. Hamaker, Rochelle, \$77,947; Gund-Graham Co., Freeport, Ill., \$81,058, and Smith & Brown Co., Chicago, \$83,468.

Logansport, Ind.—By City, for paving Burlington ave., to G. W. Palmer & Co., of Logansport, at \$1.62 per sq. yd., for Brazil brick.

Richmond, Ind.—For cementing of alley, from North D to North Eighth st., to Daniel Burkhardt, at 10½ cts. per sq. ft.; constructing sidewalks of North 22d st., from Main to F sts., on west side and from D to F sts. on east side, to D. Burkhardt, sidewalks 9 cts. a sq. ft., cement crosswalks 11 cts. a sq. ft., and vitrified brick crosswalks, 15 cts. a sq. ft.; improving South C st., from 15th to 16th sts., by graveling roadway, cementing curbs, walks and sidewalks on both sides, to Foster Construction Co., \$4.23 per lin. ft., complete.

Seymour, Ind.—By City Council, for paving as follows: With brick on Ewing st., to De Golyer & Co., for \$18,956, and with brick, S. Walnut st., to Ewing Shields, for \$14,280.

Cedar Falls, Ia.—To Bryant Asphalt Co., for paving on Tremont, Sixth, Seventh, Eighth, Ninth, 10th and 11th sts.

Des Moines, Ia.—To Barber Asphalt Co., for Fourth st. paving.

Des Moines, Ia.—By City, for 12,706 sq. yds. of concrete pavement on Grand ave., to Lytton-Reinking Co., of Des Moines, at \$1.46 per sq. yd.

Waterloo, Ia.—By City Council, for asphalt pavements on Tremont, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth sts., in all about 23,000 sq. yds., to W. A. Bryant Paving Co., at \$1.44 per sq. yd.

Winterset, Ia.—By City, for about two miles of street paving, to R. A. Elzy, of Marshalltown, for asphalt, at \$1.71 per sq. yd., and 36 cts. per lin. ft. for curb.

Louisville, Ky.—To L. W. Hancock Co., for paving Fulton st., at \$8,123.

Denton, Md.—For constructing State highway in Caroline County, to Chesapeake Construction Co., of Preston, for \$45,598.

Boston, Mass.—For asphalt pavement in Exeter and Boylston sts.—(a) asphalt, (b) bitulithic: Fred S. & A. D. Gore Corporation, (a) \$12,608, (b) \$12,578 (awarded contract); Warren Bros. Co., (a) \$12,203, (b) \$12,589; Jas. Doherty, (b) \$12,629; Frank O'Connell, (b) \$12,988; Barber Asphalt Paving Co., (a) \$13,016; Jones & Meehan, (a) \$14,043, (b) \$15,456.

Boston, Mass.—For wood block pavement in Hammond st., to Fred S. and A. D. Gore Corporation, \$17,831; for wood block pavement in Massachusetts ave., to Fred S. and A. D. Gore Corporation, \$32,179.

Fall River, Mass.—For furnishing 225,000 paving blocks, as follows: Nelson A. Bennett, Sterling, Conn., 25,000 blocks, \$1.68 sq. yd.; Savey & Jackson, 75,000 blocks, \$1.71½ sq. yd.; Willard M. Petter, 125,000 blocks, \$1.80 sq. yd.

Springfield, Mass.—By City, for disposal of garbage, to Merg Engineering Co., of Boston.

Kalamazoo, Mich.—By City Council, for asphaltic concrete paving, to Globe Construction Co., the low bidders. With exception of Portage st. all thoroughfares to be paved will be laid with Pioneer asphalt. Bermuda asphalt will be used on Portage st. Total amount of asphaltic concrete work to be laid is 30,000 ft. Part on which Pioneer asphalt will be used will cost \$1.34 a ft. with exception of South Burdick st. where 8-in. concrete base will be laid and cost will be \$1.43. Bermuda asphalt to be used on Portage st. will cost \$1.40.

St. Louis, Mo.—By Board of Public Improvements, for street reconstruction and improvement work, total estimated cost being \$231,194.89. Brick. Potomac, between Louisiana and Grand, Ruecking Construction Co., \$10,692.96; Goodfellow, between North Market and Maffit, Harry F. Heman, \$8,718.24; Angelica, between

Wharf and First, Perkinson Bros. Construction Co., \$17,587.92; Koeln, between Vermont and Eugene, Ruecking Construction Co., \$21,141.14; North Market, from 15th to Glasgow, Perkinson Bros. Construction Co., \$56,443.63; 17th, from Clark to Market, Eyeremann Construction Co., \$10,172.11; Angelica, from First to 11th, William H. Redemeyer, \$10,767.33. Bitulithic, King's Highway, from Arsenal to the intersection of Vandeventer ave. and Old Manchester rd., Granite Bituminous Paving Co., \$34,751.54. Wood, Washington, from 12th to 18th, the Parker-Washington Co., of West Virginia, \$23,056.72; Ninth, from Market to Washington, the Parker-Washington Co., of West Virginia, \$11,133.53; Taylor, from Forest Park, blvd. to Maryland, Trinidad Asphalt Manufacturing Co., \$15,368.65; Seventh, from Market to Washington, the Parker-Washington Co., of West Virginia, \$11,356.12.

Sedalia, Mo.—By City, for paving Osage ave. with brick on a 4-in. concrete base, about 9,000 sq. yds., to Gorrill & Detjen, of Sedalia, at \$1.69 per sq. yd.

McComb, Miss.—By City Council, for laying concrete sidewalks, to Oxford Concrete Co., of Greenwood, Miss., at 85 cts. per sq. yd. for sidewalks and \$1.20 per sq. yd. for street crossing.

Helena, Mont.—For paving contracts, as follows: Helena ave., with brick, to Smith & Saner, \$14,344; Railroad st., with brick, to Louis Johnson, \$22,332; Davis st., to Louis Johnson, \$4,439.

Atlantic City, N. J.—To J. F. Shanley Co., of Philadelphia, Pa., for paving with asphalt Massachusetts and other streets, at \$1.72 per sq. yd., or total of \$31,000.

Elizabeth, N. J.—By County Road Commission of Union County Board of Freeholders, for paving Newark ave., to Wm. J. McCloud & Co., or Elizabeth, for \$63,915. Contract for paving Shunpike rd., in Summit, was let subject to approval of State Rd. Commissioner, as follows: Section No. 1, C. H. Winans, \$20,507; No. 2, Weldon Contracting Co., \$2,608; No. 3, Commonwealth Quarry Co., \$11,750.

Paterson, N. J.—By Board of Public Works, for applying Tervia B on macadam streets, to George F. Brackett Co., at 4 cts. per sq. yd.

Buffalo, N. Y.—By Common Council, for paving Heath st., to Erie Contracting Co., for \$14,995.

Lockport, N. Y.—By Common Council, to C. N. Stainthorpe & Co., for paving Race st. with Bessemer shale paving block, at \$2,690.

Newburgh, N. Y.—By City, to Warren Bros. Co., of Boston, Mass., for resurfacing Broadway, at following bid: 15,000 sq. yds. bitulithic, resurfacing old macadam roadway, \$1.83; 800 cu. yds. extra broken stone, \$3; total, \$29,850. Totals of other bids: Aetna Engineering & Contracting Co., Herkimer, N. Y., \$34,100; Jora & Kehoe, Inc., Newburgh, \$35,500; Abner M. Harper, Inc., Newburgh, \$36,510.

Schenectady, N. Y.—By Board of Contract and Supply, for 5,000 sq. yds., more or less, of asphalt pavement repair work, to Schenectady Contracting Co. on bid of \$1.16 a sq. yd. The Union Paving Co.'s bid was \$1.28.

Syracuse, N. Y.—Contracts for water sprinkling in two districts have been awarded, leaving the third. The lowest bid in this district for water was \$2.37, by C. P. De Long & Son, while American Car Sprinkler Co. bid \$2.04 for emulsion oil. At meeting of Board it was decided not to let contract at present, but to make investigation with intention of awarding contract for oil unless objections develop. Contracts for sprinkling awarded are for Fourth and Fifth districts, both going to R. S. Weston Truck Co., former at \$2.50 and latter at \$1.94 a week for 1,000 ft.

Akron, O.—For paving approaches to Cornell st. viaduct, to E. J. Landor, at \$4,000.

Croton, O.—For 4,000 sq. yds. oil-bound macadam, 2,000 cu. yds. excavation and 2,500 ft. stone curb and gutter from plans of E. H. L. Maddachs, Trust Bldg., Newark, to National Co., of South Bend, Ind., for \$5,275.

Dayton, O.—By Board of Control, for paving and other improvements, as follows: Grading and graveling of roadway on Clayton st., to J. I. Geiger, at his bid of \$494.40. Paving alley west of Wayne ave., from Short st. to the Miami and Erie Canal feeder, with cement, Yount & Jackson, at their bid of \$825.30. Paving Terry st., from Bayard st. to old levee, to Yount & Jackson, at their bid of \$2,914.80. Paving Clover st., from Filmore st. to Nassau st., to David Beard, at his bid of \$11,605.25. Grading and graveling of Euclid ave., from Germantown st. to Banker st., to Hecker & Kirchner, at their

bid of \$1,470. Grading and graveling roadway of sacus st., to Hecker & Kirchner, at their bid of \$1,262.95.

Findlay, O.—For paving, as follows: To Hancock Stone Co., Findlay, for \$15,990; to H. Wolder & Sons, Rawson, \$4,220, and to Bluffton Stone Co., Bluffton, \$10,193. In Coshocton, to Chas. Bird, of Springfield, for \$16,170.

Jefferson, O.—By State Highway Department, for grading and paving with bituminated concrete, Andover rd., State Highway E. Petition No. 366 in Andover Township, length 8,523 ft., or 1.61 miles; width of pavement, 16 ft., to T. P. Fitzgerald, Ashtabula, at \$12,285. James R. Marker, State Highway Commissioner.

Lancaster, O.—By State Highway Department, for grading and paving with water-bound macadam, Lancaster-Newark rd., State Highway A, Petition No. 449, in Walnut Township, to Wm. Kuhnlan, of Cincinnati, at \$25,180. Length, 22,616.5 ft., or 4.28 miles. James R. Marker, State Highway Commissioner.

Warren, O.—By State Highway Department, for grading and paving with bituminated concrete, Hartford-Northern rd., State Highway B, Petition No. 453, in Hartford Township, to Finley Ward & Co., Sharpsburg, O., at \$18,400. Length, 14,200 ft., or 2.69 miles. J. R. Marker, State Highway Commissioner.

Youngstown, O.—For construction of brick pavement, from city limits to Boardman center, by Good Roads Commissioners, for Section 3, 6,000 ft. long, to Turner & Olson, for \$14,777.60, although their figure was \$152.50 higher than that of Frank Hannon, lowest bidder. Hannon was lowest bidder on Sections 2 and 3 and was given former at \$18,614.24, being larger of two contracts. Contracts for two other roads were awarded to lowest bidders, as follows: Town line road, between Youngstown and Austintown, Section 2, to G. A. Gialdini & Co., for \$13,795.90; Section 3, to E. J. Kane, for \$17,021.55; Raccoon rd., Austintown Township, to Ross O'Rourke, for \$8,929.42.

Boswell, Pa.—By Boswell Board of Trade, for laying of about 4,000 ft. of concrete walks and setting of curbstones, to Frank Lutarie, of Boswell. Mr. Lutarie's bid was 12 cts. a sq. ft. for sidewalk, and 60 cts. per front ft. for stone curb.

Buffalo, Pa.—By State Highway Commission, for Route No. 26, Union County, to Charles T. Eastburn, Yardley, \$61,441.46.

Dale, Pa.—By Dale Council, for improvements, as follows: Clymer Brick & Fireclay Co., of Clymer, secured brick contract at \$18 per M. Contract for excavating and paving was let to firm of Jones & Suppes, for \$24,923.84 for brick, tar, macadam and concrete, or \$24,369.84 without concrete. Five bids were received.

Elizabeth, Pa.—By County Road Commissioners of Union County Board of Freeholders, for paving Newark ave., to Wm. J. McCloud & Co., of Elizabeth, for \$63,915. Contract for paving Shunpike rd., in Summit, was let subject to approval of State Road Commission, as follows: Section No. 1, C. H. Winans, \$20,507; No. 2, Weldon Contracting Co., \$2,608; No. 3, Commonwealth Quarry Co., \$11,750.

Harrisburg, Pa.—For rebuilding of River rd., from northern end of city to Fort Hunter, distance of over four miles, by State Highway Commissioner Bigelow, to Chas. T. Eastburn, of Yardley, at \$69,434.48. Other bidders were as follows: Central Construction and Supply Co., of this city, \$70,710.56, and Stucker Bros. Construction Co., of this city, \$73,756.05.

Hazleton, Pa.—By City Councils, for paving of North Pine st., to Ario Ruth, at \$8,891.60. Other bids as follows: E. M. Rosser, \$9,066.76; John A. Leffler, \$8,917.36; Crolomo & Pecenzo, \$9,177.38; Ludwig Kramer, \$9,191.32; James Correlli, \$9,421.32. For paving of Diamond ave., from Wyoming to Alter sts bids were as follows: E. M. Rosser, \$27,951; James Correlli, \$27,977.70; John A. Leffler, \$27,288.50; Crolomo & Pecenzo, \$26,165.80; Ludwig Kramer, \$28,176.78; Ario Ruth, \$28,122.20. Firm of Crolomo & Pecenzo being lowest bidders, were awarded contract.

Ingram, Pa.—For paving, curbing and grading of Dewey, Schley and Evans aves., to Sawders Paving & Construction Co., Pittsburgh, for \$22,214.

Columbia, S. C.—By Richland County, to A. E. Legare Construction Co., 1302 Main st., Columbia, at \$8,000, to resurface county road.

Mitchell, S. Dak.—To C. H. Atkinson, of Watertown, S. Dak., for grading and paving streets, for \$39,760.

Chattanooga, Tenn.—To D. L. Coffey Co., for paving Glass st. with concrete, at \$17,100.

Johnson City, Tenn.—To Cleveland Trinidad Paving Co., of Cleveland, for paving Unaka ave., for about \$40,000.

Dallas, Tex.—To Texas Bitulithic Co., for paving Carroll ave., from Ross to Munger, with bitulithic, at \$3,942.20.

Dallas, Tex.—To Municipal Paving Co., for paving Live Oak st., from Pacific ave. to Houston and Texas Central Railroad tracks. Company's bid was \$2.50 per sq. yd. for work. Vitified Thurber brick, laid on 5-in. gravel concrete base will be used.

Dallas, Tex.—Commissioner Lee's recommendation awarding paving of Parry ave., from Exposition to Haskell aves., to Roach-Manigan Paving Co., has been adopted. Successful contractors submitted bid of \$13,244.87 for wooden block pavement. Commissioner Lee said he believed this form of pavement would be best for street and only other company bidding for blocks was Creosoted Wood Block Paving Co., whose bid was higher than Roach-Manigan Co. Total cost of the paving will be divided as follows: Property holders, \$6,029.78; city, \$4,504.14; Dallas Terminal Railway and Union Depot Co., \$1,242.83; Texas and Pacific Railroad Co., \$434.69 and the street railway company, \$1,033.48. City Attorney has been instructed to prepare contract at once.

Dallas, Tex.—By Board of Municipal Commissioners, for paving Exposition ave., from Main st. to the Fair Grounds, to Roach-Manigan Paving Co., of Fort Worth, at \$2.95 per sq. yd., a total of \$56,156.99. For paving of intersection of Harwood and Pacific contract was given to Municipal Paving Co., of Dallas, for Thurber vitified blocks, at \$845. Same company bid \$983 for Buffalo vitified blocks and \$1,082.60 for 4-in. creosoted wood blocks. Creosoted Wood Block Paving Co., of Dallas, bid \$1,041.84, for 4-in. blocks, and the Texas Bitulithic Co., \$750.80 for bitulithic.

Galveston, Tex.—By County Commissioners, to W. L. Pierson & Co., Galveston, at \$25,000, to place slabs and concrete pilling on 1,000 ft. of unprotected roadway on island end of causeway.

Richmond, Va.—To Washington Asphalt Block & Tile Co., for smooth paving Grove ave. westerly from Lombardy st., at \$2.20 per sq. yd., to cost \$25,000.

Aberdeen, Wash.—For paving Broadway, from First to Sixth sts., Local Improvement District No. 401, 7,750 yds., to Barber Asphalt Paving Co., at \$13,000. Estimated cost, \$13,053.60. Chas. W. Ewart, City Engineer.

Bellingham, Wash.—For paving 15th st., to Peterson, Wevel & Hawkins, \$15,229.

Seattle, Wash.—For grading and curbing of Genesee st., to Geo. C. Dietrick & Co., Globe Block, at \$62,670.

Walla Walla, Wash.—For constructing pavement in 10 to 12 alleys, to Tribou Blackman, Walla Walla, Wash., \$10,344.

Assiniboia, Man.—By City Council, for paving Portage ave., to Bitulithic & Contracting Co., Ltd., at \$2.86 per sq. yd. for the first 1½ miles, and at \$2.90 per sq. yd. for remaining 2½ miles.

Kamloops, B. C.—To Graff Construction Co., Crary Bldg., Seattle, Wash., for sidewalk work here, at \$22,000.

BIDS RECEIVED

Kalamazoo, Mich.—Bids for asphaltic concrete paving to be done during coming summer have been opened by City Council and submitted to City Auditor for tabulation. Low bid on work was made by Globe Construction Co. of this city, as follows: Pioneer asphalt, six-in. base, \$1.34 per sq. yd., 8-in. base \$1.43; Bermudez asphalt, 6-in., \$1.40, 8-in., \$1.49; Trinidad asphalt, 6-in., \$1.40, 8-in., \$1.49.

St. Paul, Minn.—For paving of Fourth st., from Wabash st. to Seven Corners, and for paving of Fifth st., from Broadway to Cedar and Wabasha to St. Peter sts., as follows: New bid for paving Fifth st., submitted by Fielding & Shepley, with sandstone, was \$26,090, against former low bid of \$27,708, submitted by General Contracting Co. Engineer's estimate for the work was \$25,708. On paving Fifth st. with creosote block, Fielding & Shepley bid \$24,855, against former low bid of \$25,700, submitted by General Contracting Co. Fourth st. bids, however, will go, on cash basis, to General Contracting Co. General Contracting Co.'s new bid for work is \$19,910, against former low bid of \$20,400, submitted by Fielding & Shepley, on sandstone basis. Using creosote blocks, General Contracting Co.'s new bid is \$19,089, against Fielding & Shepley's former bid of \$19,500.

Elizabeth, N. J.—For paving, as follows: Newark ave.—C. H. Winans, \$76,683; Samuel Sampson, \$70,599.50; William J. McCloud & Co., \$63,915; James J. Potts, \$72,325.50; J. F. Shanley Co., flat rate on concrete and asphalt, with total of contract not carried out; O'Gara & McGuire Co., \$66,530.80. Railway ave.—Hastings Pavement Co., \$27,456.19; C. H. Winans, \$23,081.80; C. E. Humphrey, \$20,634.39; Warner-Quinlan Asphalt Co., amiesite pavement, \$23,016.16; Warner-Quinlan Asphalt Co., Victoria pavement, \$17,910.12; Weldon Contracting Co., amiesite pavement, \$12,894.67; Weldon Contracting Co., Warrenite pavement, \$14,630.88; Weldon Contracting Co., bitulithic pavement, \$12,843; Westfield ave.—Hastings Pavement Co., \$39,876.69; E. C. Humphrey, \$30,988.71; Warner-Quinlan Asphalt Co., Victoria pavement, \$29,130.48; Warner-Quinlan Asphalt Co., asphalt pavement, \$32,502.48; Weldon Contracting Co., amiesite pavement, \$16,762; Weldon Contracting Co., bitulithic pavement, \$26,280.87; Weldon Contracting Co., asphalt block, \$24,176.14; Weldon Contracting Co., Warrenite pavement, \$17,878.86; Dolorway Paving Co., \$1.57 per sq. yd. with Dolorway pavement; C. H. Winans, asphalt block, \$12,768.07; asphalt block on old base, \$7,527.50. Shunpike rd.—Weldon Contracting Co., Section No. 1, macadam, \$23,821.26; with two coats of dust layer, \$25,008.36; Section No. 2, macadam, \$2,608.36; with two coats of dust layer, \$2,869.20; C. H. Winans, Section No. 1, macadam, \$20,507.25; Commonwealth Quarry Co., Section No. 3, \$11,750.49. South Ave., Plainfield.—C. H. Winans Co., amiesite pavement, \$19,493.90; C. H. Winans Co., concrete, \$14,403.50; E. C. Humphrey, amiesite, \$17,995.60; Warner-Quinlan Asphalt Co., asphalt, \$13,612.80; C. F. Eastman Co., amiesite pavement, \$20,494; Joseph F. Burke, amiesite pavement, \$22,398.50; Weldon Contracting Co., amiesite pavement, \$19,184.70; Weldon Contracting Co., Warrenite, \$21,374.40.

Long Branch, N. J.—For building Water Witch section of Ocean Blvd., as follows: Low bidders are Stout & Caruso, of Atlantic Highlands, and Richard R. Hughes, of West Long Branch. Their bids were ordered forwarded to State Rd. Commissioner Stevens. In their bids two kinds of gravel were mentioned, known as "Hopping" and "Allenwood." The bids were as follows: J. L. Le Compte, Lakewood, Hopping gravel, \$25,342; Allenwood gravel, \$26,697. Stout & Caruso, Atlantic Highlands, Hopping gravel, \$17,530.50; Allenwood gravel, \$20,647. R. R. Hughes, West Long Branch, Hopping gravel, \$18,000; Allenwood gravel, \$20,000. Bryman & Rutherford, Red Bank, Hopping gravel, \$18,058; Allenwood gravel, \$21,852. Monmouth Contracting Co., Red Bank, Hopping gravel, \$17,570.20; Allenwood gravel, \$20,876.40. Bids for building concrete paving walls along same road were also opened. There are about 11,000 cu. yds. and bidders were authorized to specify the amount per cu. yd. The bids were as follows: Stout & Caruso, \$7.50; Monmouth Contracting Co., \$6.24½; Ambrose Matthews & Thompson, \$7.50; C. S. Cuttingham & Co., \$6.50; J. L. Butcher & Son, \$10.

Mount Vernon, N. Y.—For improvement of several of city's streets, as follows: Regulating, grading and improving Millington st. (bituminous macadam).—McGovern Contracting Co., masonry, \$3; new curb, \$75 cts.; old curb, 50 cts.; bituminous macadam, \$2.90; brick pavement, \$2.50; flags, \$1; flags relaid, 40 cts. Sabino Guarino, masonry \$4; new curb, \$1.50; old curb, 50 cts.; macadam, \$1.50; brick pavement, relaid, 75 cts.; brick pavement furnished and laid, 2.80; flags, \$1; flags relaid, 50 cts. Charles Matolla, masonry, \$2.75; new curb, 79 cts.; old curb, 30 cts.; macadam, \$1.19; brick pavement relaid, 75 cts.; brick pavement furnished and laid, \$2.33; flags, 85 cts.; flags relaid, 10 cts. Louis Petrillo, masonry, \$4.50; new curb, 99 cts.; old curb, 35 cts.; macadam, \$1.27; brick pavement relaid, \$2.40; brick pavement furnished and laid, \$2.40; flags, 90 cts.; flags relaid, 15 cts. Frank Nordone, masonry \$2.50; new curb, \$1.15; old curb, 50 cts.; macadam, \$2.05; brick pavement relaid, \$1; brick pavement furnished and laid, \$2.75; flags, \$1; flags relaid, 10 cts. James Ciarcia, masonry, \$3.75; new curb, 95 cts.; old curb, 30 cts.; macadam, \$1.25; brick pavement relaid, \$1; brick pavement furnished and laid, \$2.40; flags, 90 cts.; flags relaid, 15 cts. Regulating, grading and paving of Cedar st. (macadam).—Louis Petrillo, new curb, \$1.05; old curb, 25

cts.; old crosswalks relaid, 74 cts.; macadam, 95 cts.; brick pavement, \$1.25; brick pavement furnished and laid, \$2.75; flags, 60 cts.; flags relaid, 11 cts.; headers, 60 cts. Charles Matolla, new curb, 79 cts.; old curb, 40 cts.; old crosswalks relaid, 50 cts.; macadam, \$2.25; brick pavement, 75 cts.; brick pavement furnished and laid, \$2.24; flags, 74 cts.; flags relaid, 9 cts.; headers, 65 cts. James Ciarcia, new curb, 75 cts.; old curb, 50 cts.; old crosswalks relaid, 50 cts.; macadam, \$1; brick pavement, 40 cts.; brick pavement furnished and laid, \$2; flags, 45 cts.; flags relaid, 2 cts.; headers, 15 cts. Sabino Guarino, new curb, 79 cts.; old curb, 50 cts.; old crosswalks relaid, 10 cts.; macadam, \$1.10; bricks, 50 cts.; brick pavement furnished and laid, \$2.30; flags, 70 cts.; flags relaid, 10 cts.; headers, 50 cts. (Bituminous macadam), McGovern Contracting Co., new curb, 75 cts.; old curb, 50 cts.; old crosswalks relaid, 60 cts.; bituminous macadam, \$1.90; bricks relaid, \$2.50; flags, \$1; flags relaid, 40 cts.; headers, 75 cts. Regulating, grading and paving of Neuber st. (bituminous macadam), McGovern Contracting Co., new curb, 75 cts.; old curb, 50 cts.; bituminous macadam, \$1.90; brick pavement, on 4-in. concrete, \$1.90; flags, \$1; flags relaid, 40 cts.; headers, 75 cts. (Macadam), Charles Matolla, new curb, 77 cts.; old curb, 40 cts.; macadam, \$1.18; brick pavement, \$1; brick pavement furnished and laid, \$2.25; flags, 69 cts.; flags relaid, 10 cts.; headers, 65 cts. Sabino Guarino, new curb, \$1; old curb, 50 cts.; macadam, \$1.30; brick pavement, 60 cts.; brick pavement furnished and laid, \$2.60; flags, 80 cts.; flags relaid, 15 cts.; headers, \$1. Louis Petrillo, new curb, \$1; old curb, 35 cts.; macadam, 90 cts.; brick pavement, \$1.25; brick pavement furnished and laid, \$2.25; flags, 75 cts.; flags relaid, 9 cts.; headers, 50 cts. Regulating, grading and improving of East Fourth st., Frank Nordone, masonry, \$3; new curb, \$1.10; old curb, 50 cts.; brick pavement, \$1; brick pavement furnished and laid, \$2.65; flags, \$1.02; flags relaid, 15 cts.; headers, \$1; culverts, \$10. John Lowry, masonry, \$5.25; new curbs, 95 cts.; old curbs, 35 cts.; brick pavement, \$1.25; brick pavement furnished and laid, \$2.60; flags, 76 cts.; flags relaid, 17 cts.; headers, 60 cts.; culverts, \$10.30. Chas. Matolla, masonry, \$2.75; new curb, 77 cts.; old curb, 40 cts.; brick pavement, \$1; brick pavement furnished and laid, \$2.48; flags, 69 cts.; flags relaid, 10 cts.; headers, 65 cts.; culverts, \$10. Louis Petrillo, masonry, \$3.96; new curb, \$1.15; old curb, \$1; brick pavement, \$1; brick pavement furnished and laid, 2.43; flags, 95 cts.; flags relaid, 20 cts.; headers, 50 cts.; culverts, \$9. Curbs and gutters on East Fifth st.—Louis Petrillo, new curb, 63 cts.; old curb, 25 cts.; old crosswalks relaid, 70 cts.; brick pavement relaid, \$1.25; brick pavement furnished and laid, \$2; flags, 60 cts.; flags relaid, 7 cts.; concrete curbs, 79 cts. Sabino Guarino, new curb, 70 cts.; old curb, 40 cts.; old crosswalks relaid, 35 cts.; brick pavement relaid, 50 cts.; brick pavement furnished and laid, \$2.15; flags, 70 cts.; flags relaid, 10 cts.; concrete curb, 60 cts. Frank Nordone, new curb, 70 cts.; old curb, 40 cts.; crosswalks relaid, 25 cts.; brick pavement relaid, \$1; brick pavement furnished and laid, \$2.26; flags, 75 cts.; flags relaid, 10 cts.; concrete curb, 60 cts. Charles Matolla, new curb, 77 cts.; old curb, 40 cts.; old crosswalks relaid, 50 cts.; brick pavement relaid, 75 cts.; brick pavement furnished and laid, \$2.13; flags, 73 cts.; flags relaid, 10 cts.; concrete curbs, 52 cts. Regulating, grading and improving of Beechwood ave. (bituminous macadam), McGovern Contracting Co., masonry, \$3; new curb, 75 cts.; old curb, 50 cts.; bituminous macadam, \$1.80; brick pavement, \$2.50; flags, \$1; flags relaid 40 cts.; headers, 75 cts.; culverts, \$15. Eastern Asphalt Paving Co., masonry, \$2.50; new curb, 75 cts.; old curb, 50 cts.; bituminous macadam, \$1.71; brick pavement, \$2.20; flags, 70 cts.; flags relaid, 10 cts.; headers, 75 cts.; culverts, \$1 a ft. (Macadam), Louis Petrillo, masonry, \$3; new curb, 79 cts.; old curb, 50 cts.; macadam, 96 cts.; brick pavement relaid, \$1.50; brick pavement furnished and laid, \$2.17; flags, 64 cts.; flags relaid, 10 cts.; headers, 60 cts.; culverts, \$8. Regulating, grading and improving of Elliott st. (bituminous macadam), McGovern Contracting Co., masonry, \$3; new curb, 75 cts.; old curb, 50 cts.; bituminous macadam, \$1.90; brick pavement relaid, \$2.50; flags, \$1; flags relaid, 40 cts. (Macadam), Charles Matolla, masonry, \$2.40; new curb, 78

cts.; old curb, 40 cts.; macadam, \$1.18; brick pavement relaid, \$1; brick pavement furnished and laid, \$2.23; flags, 69 cts.; flags relaid, 10 cts. S. Guarino, masonry, \$3; new curb, 95 cts.; old curb, 50 cts.; macadam, \$1.30; brick pavement relaid, 60 cts.; brick pavement furnished and laid, \$2.50; flags, 80 cts.; flags relaid 15c. Louis Petrillo, masonry, \$2.75; new curb, 75 cts.; old curb, 25 cts.; macadam, 93 cts.; brick pavement relaid, 75 cts.; brick pavement furnished and laid, \$2.37; flags, 74 cts.; flags relaid, 25 cts. Frank Nordone, masonry, \$2.50; new curb, \$1; old curb, 50 cts.; macadam, \$2; brick pavement relaid, 50 cts.; brick pavement furnished and laid, \$2.65; flags, \$1; flags relaid, 10 cts.

Yonkers, N. Y.—For Mile Square Rd. to Midland ave., as follows: Canepi & Nolan, macadam, \$24,070.10; telford, \$25,576.90. Anthony Fischer, macadam, \$25,809.50; telford, \$26,275.50. Charlton & Weston, macadam, \$26,716; telford, \$26,716. O'Rourke Co., macadam, \$26,337; telford, \$27,087. Thos. F. Grady, macadam, \$22,500; telford, \$23,600. F. Cianfaglione, macadam, \$24,605; telford, \$28,726. N. Mangini, macadam, \$27,950; telford, \$26,875.

Dayton, O.—For paving, as follows: Alley west of Wayne ave., from Short st. to canal, with cement, Yount & Jackson, low, with bid of \$825.30; on brick, A. J. Kammer, low, with a bid of \$1,124.50. Forest ave., from Lehman to Rung sts., with straight cement curbing, on brick, David Beard is low with bid of \$15,246.50; with combined curb and gutter, the Andrews Asphalt Paving Co. is low with its bid of \$17,211.25; on asphalt block, the Asphalt Paving Block Co. is low on 2-in. block with its bid of \$19,135.50; on 2½-in. block, \$20,071.50; on 3½-in. creosoted wood block, W. J. Kernan & Co. is low, with \$21,463.50. Forest ave., from Rung st. to Main st., with straight cement curb and brick pavement, David Beard is low with \$14,859; with combined curb and gutter and asphalt paving, American Construction and Supply Co. is low with its bid of \$17,730; on 2-in. asphalt block, Asphalt Block Paving Co. is low with its bid of \$18,092.50; on 2½-in. asphalt block, Asphalt Block Paving Co. is low with \$18,917.50; for creosoted wood block, American Construction and Supply Co., for 3-in. block, \$21,130. Clover st., from Fillmore to Nassau st., on brick and straight cement curb, David Beard is low with his bid of \$11,605.25. Perry st., from Bayard to the levee, on brick pavement with straight cement curb, Yount & Jackson are low with their bid of \$29,014.80.

Eugene, Ore.—Bids on Seventh st. paving, as follows: Warren Construction Co., standard bitulithic, per yd., \$2; gravel bitulithic, \$1.60; light gravel bitulithic, \$1.52; excavation, 70 cts. a yd.; fill, 30 cts.; curbing, 40 cts. for straight; 70 cts. for curved; \$25 for catch basins. E. W. Geiger & Co., Dolarway paving of various qualities, from \$1.10 to \$1.36 a yd.; cut, 62 cts.; fill, 35 cts.; curb, 38 cts.; catch basins, \$22. T. H. Ellis & Co., concrete pavement at \$1.25 or \$1.10, depending on thickness; cut, 65 cts. a yd.; fill, 35 cts.; curbs, 39 cts. straight, and 75 cts. for curb; catch basin, \$24. Clark & Henery Construction Co., asphaltic pavement, \$1.80; bituminous concrete, \$1.65; light bituminous concrete, \$1.54; cut, 65 cts.; fill, 10 cts.; curbing at various prices depending on whether combined with gutter or not; catch basin, \$25.

McMinnville, Ore.—For constructing approximately 26,000 sq. yds. of pavement: Dennis & Christenson, Dolarway, \$1.50 per sq. yd.; Carbolineum Wood Preserving Co., wood blocks, \$2.39 per sq. yd.; Acme Paving Co., Portland, asphalt on bituminous base, \$1.50 per sq. yd.; H. Blake, Los Angeles, El Oso, 4-in. concrete base, \$1.70 per sq. yd.; H. Blake, Los Angeles, El Oso, 6-in. concrete base, \$1.95 per sq. yd.; H. Blake, Los Angeles, El Oso, 4-in. concrete bituminous base, \$1.68 per sq. yd.; Warren Construction Co., standard bitulithic, \$1.95 per sq. yd.; Warren Construction Co., light bitulithic, \$1.79 per sq. yd.; Warren Construction Co., gravel bitulithic, \$1.76 per sq. yd.; Universal Construction Co., El Oso asphaltic, 5-in. concrete base, \$2.10 per sq. yd.

Superior, Wis.—For paving portion of Tower ave.: (a) brick, (b) creosoted blocks, (c) asphalt, (d) asphaltic concrete, (e) sandstone block, (f) concrete: White Construction Co., (b) \$89,079; E. Johnson, (a) \$92,260, (b) \$108,754, (c)

\$90,943, (f) \$73,930; P. McDonnell, (a) \$92,000; (c) \$88,000; (d) \$82,819; (f) \$73,930; P. E. Bergman & Co., (a) \$92,986, (b) \$114,617; M. Peterson, (a) \$95,341, (b) \$112,299, (c) \$124,462, (f) \$65,884; E. A. Dahl, (a) \$93,534, (c) \$91,897, (e) \$118,281; Russell Construction Co., \$91,473, (b) \$110,452; Fielding & Shepley (a) \$94,021, (b) \$105,550, (c) \$91,606, (d) \$81,063, (f) \$118,281; S. A. Riches, (a) \$94,246; John Diffor, (a) \$95,399.

SEWERAGE

Wynne, Ark.—Installation of sewerage and water works systems have been authorized.

Alameda, Cal.—Resolution of intention to install sewer in Webster st. roadway, in warehouse district, has been adopted.

San Jose, Cal.—Petitions have been received for construction of sewers in various streets.

San Francisco, Cal.—Sewer bonds in sum of \$400,000 will be sold on July 1 by Board of Supervisors.

Hartford, Conn.—On recommendation of the Engineering Department the Board authorized an advertisement for bids for the construction of sewers in Homestead ave. and Windsor st.

Hartford, Conn.—Bids have been opened by Board of Contract and Supply, for rebuilding of about 360 ft. of intercepting sewer. Nine bids were examined and figures submitted were referred to the Engineering Department for tabulation. Bids were announced as follows: Charles H. Slocumb & Co., \$6,421; J. M. Manucchio, \$7,864; Pierson Engineering Co., \$7,631; W. M. Byrne & Co., \$8,640; O'Neill Bros., \$7,460; B. Silvestri, \$6,293; A. D. Bernardino, \$8,175; Hartford Paving Co., \$6,480; Frank Dinello, \$6,357.65. Silvestri is lowest bidder and Engineering Department will recommend awarding of contract to him.

Norwich, Conn.—County Health Officer Arthur M. Brown and Local Health Officer L. J. Fontaine have called meeting of property owners on Railroad and High sts., Baltic, to see what course to pursue regarding building of sewer in Railroad and High sts.

Anacostia, D. C.—Plans are being made to have additional sewer and water mains laid in Congress Heights, to include 340 ft. of sewer pipe on Alabama ave. and 127 ft. on Eighth st.

Macon, Ga.—Bids have been opened for construction of sanitary sewers in newly annexed territory, and it is likely that McCreary Excavating Co., of Atlanta, will be the successful bidder.

Holstein, Ia.—Election will be held June 6 for voting on \$15,000 bond issue for three miles of sewers.

E. St. Louis, Ill.—Board of Local Improvements has decided to install another large sewer, a tributary to main sewer on 16th st. City Engineer's estimate of cost is \$341,000, almost one-half of total cost of big sewer. It will drain about 1,700 acres of land.

Highland Park, Mich.—Movement has been started toward construction of complete drainage and sanitary sewer system.

Kalamazoo, Mich.—Definite action has been taken by members of Sewer Committee of City Council toward expenditure of \$25,000 for new sewer mains and laterals during coming year. Plans of committee are for building big trunk line sewer similar to Fulford st. main on Patterson st. and Douglass ave. This improvement will demand expenditure of about \$13,000. Remaining \$12,000 will be expended on sewers all over city.

Kalamazoo, Mich.—Streets on which sewers will be laid, including big trunk sewer on Douglas ave., are as follows: Douglas ave., north to Alamo ave., 1,410 ft.; Taylor st., south to Spring st., 325 ft.; N. West st., Frank to Florence st., 340 ft.; Walbridge st., Kalamazoo ave. to M. C. 300 ft.; Pitcher st., Parson to Patterson, 790 ft.; Michigan ave., Lovell to Monroe, 1,850 ft.; Edwards st., Ransom to M. C. 360 ft.; Eggleston ave., Fulford to James, 1,800 ft.; S. Burdick, Wall to Lake, 660 ft.; James st., Stockbridge to Washington, 440 ft.; Clinton ave., Fulford to James, 1,990 ft.; Grand ave., alley, 950 ft.; alley south of Ransom, Walbridge to Lake Shore, 300 ft.; Rose pl., west of Rose st., 340 ft.; Emerson st., west from Burdick, 800 ft.; Sherwood ave., Charlotte ave. to Dwight, 390 ft.; de Able court, from West st. 210 ft.; Douglas ave. trunk sewer, 4,350 ft. Total ft., \$17,612.

Saginaw, Mich.—Joint committees on Finance and Public Grounds and Buildings of Council are considering sewerage question.

Billings, Mont.—Placing of sewer in alley between 27th and 28th sts., has been authorized.

Madison, Neb.—Installation of sewer system will be voted on.

Longport, N. J.—City will issue \$14,000 worth of bonds for building of first section of the sewer plant.

Oaklyn, N. J.—Oaklyn Borough Council has adopted resolutions favoring surface drainage on Clinton ave., brick gutters, cement curbing and macadam street.

Trenton, N. J.—Ordinance has been passed to authorize construction of Sewer No. 506, in Pierce, Park and Centennial aves. H. B. Salter, City Clerk.

Brooklyn, N. Y.—Bids have been opened for 12 highway and sewer contracts in Borough of Queens, lowest bids aggregating \$187,288. Principal contract is for building about mile of big sewer mains seven, eight and nine ft. in diameter, of reinforced concrete, in Central ave., and 4,000 ft. of 6-in. glazed pipe for house connections through the Glendale section from Myrtle ave. to Proctor. Lowest bidder was Hicks-Johnson Contracting Co., \$99,895. Antonia Lambio was low bidder on constructing 1,670 ft. of 2½ ft. and 3 ft. concrete sewers and 2,000 ft. 6-in. house connection in Fresh Pond rd., from Myrtle ave. to Woodbine st., Ridgewood. His bid was \$18,544.

Hornell, N. Y.—Plans are being discussed for installation of new sewage disposal plant.

Newburgh, N. Y.—Construction of several sewers as sanitary measure imperatively demanded has been recommended by Board of Health. These are to be built in Broadway, Grove st. and West Van Ness st.

Saranac Lake, N. Y.—Additional work planned in connection with five miles of new sewers in Saranac Lake has brought estimated total cost of proposed improvements up to \$50,000. State Board of Health has approved plans for sewer extension, and Village Board of Sewer Commissioners has received completed estimate of engineer. Estimate will be presented to Village Trustees and they will be asked to call special election, when proposition will be submitted to taxpayers for approval.

Syracuse, N. Y.—Ordinance authorizing Bureau of Engineering to study problem of providing adequate sewer system for district southeast of Westcott st. and south of Genesee st., has been recommended by City Engineer Henry C. Allen. Estimated cost \$100,000.

Akron, O.—Petition for paving, grading and installing sewer laterals, in Nash st., from Spicer to Fountain st., has been referred to Street, Sewer and Water Committee.

Toledo, O.—Council Committee on Public Improvements has approved resolution providing for construction of large sewer in section of city known as Glassboro. Sewer will drain Maher, Central, Paxton, St. John, Norton and other streets in vicinity. It will be 11,000 ft. long and will cost city \$10,000.

Altoona, Pa.—Select Council at special meeting has passed two ordinances providing for special election to secure approval of voters for loan of \$150,000 for sewage disposal plant and resurfacing of paved streets. Special election will be held June 25.

Chester, Pa.—Select Councilman Thos. W. Crowe, chairman of Sewer Committee of Councils, has been instructed to advertise for construction of sewers on various streets of city.

Pottstown, Pa.—Pottstown Councilmen are inspecting sites for a proposed sewage disposal plant.

Williamsport, Pa.—Councils will probably have to readvertise for completion of Newberry sewer.

Williamsport, Pa.—When bids were opened for Dove st. house sewer and Park ave. storm sewer by Highway Committee, Charles Dugan was found to be lowest bidder in each case and committee will recommend to Council that he be awarded the contracts. The bids were as follows: Dove st. sewer, Charles Dugan, \$2,045.40; Bousch & Stewart, \$2,232.52, and Corryell Construction Co., \$2,103.80. Park ave. storm sewer, Charles Dugan, \$6,537.90; Bousch & Stewart, \$6,819.40, and Corryell Construction Co., \$7,084.40.

Dallas, Tex.—Commissioner Lee has presented estimate of cost of laying sanitary sewer from Polk to Tyler sts. in alley between 10th st. and Sunset st., Oak Cliff. Estimate has been approved and bids ordered asked for its construction.

Dallas, Tex.—Bids have been ordered for laying of 6-in. sanitary sewer in Lindell, Hubert and Greenville, approximately 2,785 ft. for 37 houses, at estimated cost of \$1,214.75; in Washington and Junius, for six houses, at \$123.75; in Nettie, Santa Fe, Hickory and Chestnut, for eight houses, at \$95; in Thomas, Carroll and Annex about 1,200 ft., for 13 houses, at \$520; also for laying of a storm sewer, 15 to 40 in. in size, on Parry, from Haskell to Exposition, and from 15 to 36 in.

in size on Exposition, from Main to Fair Grounds.

Portsmouth, Va.—It has been decided by Board of Health to appoint committee of two to confer with City Council, and urge installation of sewerage system in Hunter's and Eastwood's lanes.

Richmond, Va.—Ordinances have been adopted authorizing construction of sewer in McKenzie st., from Broad to Marshall st., to cost \$525.25; sewer in Calhoun st., between Goddin and St. Peter; in Cabell st., between Calhoun and Hickory, and Hickory, between Goddin and Calhoun, to cost \$2,351.80. Sewer in Harrison st., from Cary to alley south of Main st., to cost \$40.54.

Warwood, W. Va.—Special election will probably be held for voting on \$15,000 bond issue to sewer entire town.

Black River Falls, Wis.—Appropriation of \$35,000 has been voted for repairing of sewer system.

Superior, Wis.—City Commission has voted to issue \$19,000 worth of 20-year bonds to pay for construction of new main sewer at Billings Park. Sewer, which will be located in alley south of Belknap st., will extend from alley between Susquehanna and Lackawanna ave. to Elmira ave. Contract for sewer was awarded to Russell Construction Co. on its bid of \$24,533.

CONTRACTS AWARDED.

Mobile, Ala.—For construction of Boyles sanitary sewer, about 2½ miles in length, to Sullivan, Long & Haggerty, of Bessemer, for \$34,123.

Union Springs, Ala.—By City Council, for system of sanitary sewerage, to Dabbs & Wetmore, of Meridian, Miss.

Texarkana, Ark.—By City, at \$17,000, to George Conway, to construct sewers in District No. 17.

Santa Maria, Cal.—By City, for constructing sewer system, to Mlagenovich & Gillespie, 219 Bloom st., Los Angeles, for \$28,986.

Lakeland, Fla.—By Board of Bond Trustees, for sanitary sewerage system, to J. W. Gurley & Co., Mobile, Ala.

Sandwich, Ill.—For construction of sewers and purification works, from plans of W. S. Shields Co., Hartford Bldg., Chicago, to E. R. Harding, of Racine, Wis., at following bid: 3,410 ft. 18-in., \$1.25; 260 ft. 15-in., \$1.20; 2,050 ft. 12-in., \$1; 4,950 ft. 10-in., 65 cts.; 25,300 ft. 8-in., 50 cts.; 3,900 ft. 6-in., 50 cts.; 126 manholes, each, \$28; 10 flush tanks, each, \$70; total for sewer, \$28,670; purification works, \$9,300; 552 ft. 12-in. outlet, 60 cts.; grand total, \$38,301. Totals of other bids: (a) sewers, (b) purification works, (c) grand totals: Gray-Robinson Construction Co., Manitowoc, Wis., (a) \$30,401; C. T. Bartlett, Evanston, (a) \$28,551; Jno. W. Farley, La Grange, (a) \$30,300, (b) \$12,000, (c) \$42,632; F. M. Benner & Co., Marion, Ind., (a) \$29,998, (b) \$11,700, (c) \$42,085. Engineer's estimate, (c) \$41,658.

Ashton, Ia.—To Oliver J. Kringle, of Elkader, sewer contract for \$2,181. Other bids were as follows: S. J. Garbrick, Sheldon, \$2,491; W. D. Yeager, Cedar Rapids, \$2,863; Lytle Construction Co., Sioux City, \$2,764; Muller Bros., Knierrim, \$2,376. M. Tschirgi & Sons, Dubuque, were engineers.

Waverly, Ia.—For construction of sewer to Black Hawk Construction Co., of Waterloo, for about \$10,000.

Richmond, Ind.—By Board of Public Works, to Trippier Bros., Peru, Ind., for construction of 20-in. vitrified pipe sewer in W. Main st.

Pittsburg, Kan.—To W. E. Koch, Joplin, Mo., at \$3,184.44, for construction of 3,500 ft. vitrified pipe sanitary sewers for Pittsburg. O. T. Jones is City Clerk.

Ann Arbor, Mich.—To E. L. Schneider, for construction of about 220,000 ft. of storm water sewer on Church st. Ross Granger is City Clerk.

Fergus Falls, Minn.—To F. H. Gray, for Fourth st. sewer, for \$2,452, outlet, \$415. Other bids were as follows: E. T. Webster, St. Paul, main sewer, \$2,540, outlet, \$758; Wm. B. Bosworth, Ada, \$3,033, outlet, \$441.

Carthage, Mo.—By City Council, for construction of sanitary sewer in Sewer District No. 9, to T. K. Wood, at \$6,097.45.

Elizabeth, N. J.—To James J. Brennan, for installation of sewers and drains at Bonnie Burn Sanatorium, by Building Committee of institution of Board of Freeholders. Amount of contract is \$3,618.94, being \$1,951.91 for drain installation and \$1,667.03 for the sewers. Other bids submitted on specifications were as follows: James J. Gorman, \$5,014.58; Charles Peterson, \$4,432.95; Foster Callahan, \$4,081.43; Louis Jacques, \$4,414.90.

Salem, N. J.—For remodeling sewer system, to Atlantic Construction & Sup-

ply Co., of Atlantic City, for \$61,372 (bids opened May 9). Engineer is Clyde Potts, 30 Church st., New York City.

Rochester, N. Y.—By Board of Contract and Supply, for sewer in Jennings and Goodman sts., to Schraeder & Hicks Contracting Co., for \$21,143.

Syracuse, N. Y.—For extending Harbor Brook improvement and intercepting sewer to city line from present terminus, to Marnell Co., for \$20,886, by Syracuse Intercepting Sewer Board. Eight proposals were submitted for the work, there being but \$1,800 difference between highest and lowest bids. John Young bid \$20 higher than lowest bid.

Andover, O.—To Campbell & Haskell, Canton, O., for construction of 20,064 lin. ft. 8-in., 4,878 lin. ft. 10-in. and 2,806 lin. ft. 12-in. sanitary sewers, 64 manholes and 15 flush tanks.

Cleveland, O.—For sewage testing station, to J. Connelly Construction Co., 409 Scofield Bldg., Cleveland, for \$6,057.

Columbus, O.—For West Side storm sewer, 24-to 8-in. diameter, by Board of Control, to D. E. Sullivan & Son, Columbus Trust Bldg., for about \$60,000. Contract for relief sewer construction in Medill ave. and 20th st., to H. E. Hunt, at \$22,000.

Columbus, O.—By Director of Public Service, to H. E. Hunt, Jefferson Hotel, at \$22,000, for relief sewer on Medill ave. and 20th st.; also awarded contract to D. E. Sullivan & Son, Clinton Bldg., at \$60,000, for a 24-in. to 8-ft. diameter brick and concrete storm sewer on West Side. Henry Maetzel is City Engineer.

Youngstown, O.—By City Council, for construction of sanitary sewers, to Cantrell Construction Co.

Eugene, Ore.—For construction of 8-in. sewer in alley between Madison and Monroe, from First to alley between Clark and Cheshire, to K. L. Hall, at \$1,293.85. Other bids were: W. E. Tomlinson, \$1,573.40, and Ole Soleim, \$1,371.75.

Hazleton, Pa.—To Ludwig Kramer, for construction of Grant st. sewer, his bid being considerably lower than bids of his two competitors, Arlo Ruth and James Correll.

Woonsocket, R. I.—To Quinlan & Lyons, of Brookline, Mass., for constructing sewers in Maple st., Paradisa ave., Manville rd., Willow st., Davison ave., Park pl., Park ave., Bellevue ave., Rathbun and Adams sts.

Johnson City, Tenn.—By City, to Cleveland Trinidad Paving Co., to construct sewers and water mains.

Dallas, Tex.—For construction of new storm sewer on Exposition ave., from Commerce to Parry ave. and for storm sewer on Parry ave., from Exposition ave. to Haskell ave., by Board of Municipal Commissioners, to Dallas Lime & Gravel Co., at prices of \$6,790.72 and \$2,457.16, respectively. Work on each is to begin by July 10 and is to be completed within 60 days.

Pasco, Wash.—By City Council, for construction of sewers in Sylvester Addition, to Paine Construction Co., of Tacoma, with bid of \$6,787.78. This bid is lower than that of any rival bidders by about \$2,600, \$4,000 lower than City Engineer's estimate.

Shawano, Wis.—By Building Committee for Shawano County, to J. N. Roherty, South Wayne, Wis., at \$2,135, for construction of sewage disposal plant to be used in connection with sewer system of asylum; also for constructing foundation for elevated tank for said asylum.

Norfolk, Va.—By City, for constructing sewers in Wards 9 and 10, to Guild & Co., of Norfolk, for \$167,769.

Cobourg, Ont.—For sewage disposal works for House of Refuge, Cobourg, from plans of T. Aird Murray, 303 Lumsden Bldg., Toronto, to M. Laren & Co., 65 Cumberland ave., Toronto.

BIDS RECEIVED

Shelton, Conn.—For North End sewer, as follows: F. B. & W. H. O'Neill—12-in. pipe, per ft., \$1.52; 24-in. pipe, per ft., \$2; foundation plank, \$28; sheeting and bracing, \$22 per thousand ft.; rock excavation, \$40 per cu. yd.; total, \$5,983.20. Frank Gunello—12-in. pipe, per ft., \$1.66; 20-in. pipe, per ft., \$1.80; 24-in. pipe, per ft., \$2.20; each manhole, \$35; rock excavation, \$3.75 per cu. yd.; total, \$5,459.15. George B. Rico—12-in. pipe, per ft., \$1.27; 20-in. pipe, per ft., \$209; 24-in. pipe, \$2.45; each manhole, \$25; foundation plank, \$28; rock excavation, \$3.25 per cu. yd.; sheeting and bracing, \$22 per thousand ft.; total, \$5,290.45. Angelo Contit—12-in. pipe, per ft., \$1.49; 20-in. pipe, per ft., \$2.55; 24-in. pipe, per ft., \$2.49; each manhole, \$55; rock excavation, \$2.90 per cu. yd.; total, \$5,860.35. Pasquale Madorno—12-in. pipe,

per ft., \$1.25; 20-in. pipe, per ft., \$2.60; 24-in. pipe, per ft., \$3.75; each manhole, \$35; rock excavation, \$3.25 per cu. yd.; sheeting and bracing, \$25 per thousand ft.; total, \$5,211.25. The Edward Tracy Co.—12-in. pipe, per ft., \$1.45; 20-in. pipe, per ft., \$2.50; 24-in. pipe, per ft., \$3; each manhole, \$40; rock excavation, \$5 per cu. yd.; total, \$6,298.25.

Malden, Mass.—For manhole frames and covers and rods. Price of latter varied from 2½ cts. pound up. The bills on manhole sets were as follows: Mechanic Iron Foundry, 2 cts. per lb.; Chelmsford Foundry Co., \$9.50; Sessions Foundry Co., \$6.90; Smith Iron Co., \$11.90; Frederick B. Witherly, \$7.68; Puritan Iron Works, \$8.30.

Salem, N. J.—For furnishing material and constructing about nine miles 8- to 20-in. vitrified pipe sewers with Y branches, manholes, etc., and sewage disposal works and pumping station, including necessary piping, grading, etc., from plans of Clyde Potts, 30 Church st., New York, N. Y., as follows: J. McLinden & Co., Anglesea, \$72,024; Cantrell Construction Co., Philadelphia, \$69,900; Field, Barker & Underwood, Philadelphia, \$67,000; Atlantic Construction & Supply Co., Atlantic City, \$60,617; J. W. Helier, Newark, \$63,281.

Mt. Vernon, N. Y.—For improvement of several streets as follows: Sewer on El-Mott st., Sabino Guarino, \$3,200; Charles Mattola, \$2,900; Louis Petrillo, \$4,000; Frank Nordone, \$4,400; Vincent Cortese, \$3,495. Sewer on Millington st., Louis Petrillo, \$4,800; V. Cortese, \$4,704; C. Matolla, \$3,700; James Clarcia, \$4,875; Sabino Guarino, \$5,900; Frank Nordone, \$4,900. Sewer on Neuber st., Vincent Cortese, \$1,399; Louis Petrillo, \$1,425; Sabino Guarino, \$1,500; Charles Matolla, \$1,800.

Chester, Pa.—For sewer and water connections, as follows: W. F. Kelly & Co., for making sewer connections, as follows: Long connections, \$16; short, \$8, and central, \$15, with an additional charge of \$2 where trap and vent box at curb was used. Water connections, long, \$14; short, \$8; central, \$7; rock, \$5 per cu. yd. additional. Bid was considerably higher than rest and was not considered at any time. John A. Morgan, Cambridge Trust Co., as security, sewer connections, long, \$14.50; short, \$8; central, \$14.50, with the added note that where no vent box was used a deduction of \$2 per connection was allowed. Water connections, long, \$11; short, \$6; central, \$6; rock, \$4.50 per cu. yd. Turner Plumbing Co., Cambridge Trust Co., as security, sewer connections, long, \$12.50; short, \$8; central, \$15.50; \$2 to be deducted where vent box was not used. Water connections, long, \$12.50; short, \$6.50; central, \$4; rock, per cu. yd., \$4. Honan & Cross, Cambridge Trust Co., as security, sewer connections, long, \$14; short, \$8; central, \$14. Deductions of \$2 for no vent box. Water connections, long, \$10.50; short, \$6; central, \$6; rock, per cu. yd., \$4.50.

Seattle, Wash.—For construction of sewer on Ninth ave. south, as follows: John L. Stanley, \$765; J. A. Zinkan, \$563.04; W. G. Clark, \$731.34; Erickson Bros., not signed; Thos. I. Peterson, \$673.20.

WATER SUPPLY

Wynne, Ark.—Installation of water works and sewerage systems have been authorized.

Windsor, Conn.—Special town meeting has been held to take some action on purchase of Windsor Water Co.

Augusta, Ga.—Commissioner of Public Works Nisbet Wingfield is preparing plans and specifications for improvements at city filter plant. There will be four new units added to filter plant, besides present filters will be rebuilt. It is estimated that work will cost approximately \$16,000.

Macon, Ga.—Extension of water works system is being planned.

Pooler, Ga.—Sum of \$10,000 has been voted for construction of water works and fire protection.

Marshalltown, Ia.—Extension of water mains and sewers has been ordered.

Nashua, Ia.—Proposition to erect water works plant will be voted on June 11.

Harlan, Ky.—New system of water works is being considered.

Hancock, Md.—Installation of water plant is being considered.

Holyoke, Mass.—It has been voted to extend water mains on Winter and Oscar sts.

Holyoke, Mass.—Water Commissioners

are discussing laying of water mains up through Smith's Ferry.

Highland Park, Mich.—Special election has been ordered for June 15 to decide whether bond issue of \$49,500 shall be made for general water extensions.

Kalamazoo, Mich.—Extension of water mains is being discussed.

Red Lake Falls, Minn.—Voters have authorized issue of \$25,000 of water works bonds.

Maryville, Mo.—Bond issue of \$100,000 may be authorized for construction of water works.

Dillon, Mont.—Improvement of water works system is being considered.

Kalispell, Mont.—Extension of water mains has been ordered on north side by Council.

Portsmouth, N. H.—City Council contemplates bond issue of upwards of \$50,000 for Water Department.

Nyack, N. Y.—Petition has been made to have Board of Water Commissioners extend existing water main in Sixth ave. from its present terminal at junction of Sixth ave. and Central ave. in westerly direction to point in Sixth ave.

Woodbury, N. J.—Council is considering question of installing artesian well plant.

Cleveland, O.—Erection of large filtration plant, to cost over \$1,000,000, is being considered.

Dayton, O.—Bids will be received at office of City Auditor until 12 o'clock noon, June 21, for sale of bonds of said city in amount of \$120,000 for purpose of providing money for purpose of improving and extending water works.

Rockport, O.—Bids will be received at office of Clerk of Village until 12 o'clock noon, Tuesday, June 11, for purchase of bonds in aggregate sum of \$15,000, for purpose of extending water mains and supplying water for said village. Fred Feuchter, Clerk.

Gresham, Ore.—Water system will be extended.

Salem, Ore.—Resolutions favoring purchase of plant of Salem Water Co. through arbitration, if possible, and if not, then by condemnation proceedings, have been passed at mass meeting of citizens in South Ward.

St. George, S. C.—Plans are being prepared for three miles of 8-in. and 6-in. cast iron pipe, tank, tower, etc.

Ethan, S. Dak.—Residents of this place held joint meeting with Town Board and authorized Board to go ahead and have municipal water works system installed, at cost of about \$7,500. As town has ample money on hand it will be unnecessary to call special election to vote bonds.

Harrisburg, S. Dak.—Agitation has commenced for construction of municipal system of water works, and it is probable special election soon will be called to vote necessary bonds.

Springfield, S. Dak.—Special election soon will be called for purpose of voting bonds in sum of \$2,500 for extension of municipal water works system and the grading of the streets.

Dallas, Tex.—Plans for Oak Cliff water works have been completed.

Dallas, Tex.—Plans for water filtration plant to be installed here will be completed about the first of June.

Nordheim, Tex.—At meeting of Nordheim Business Men's Club it was decided to circulate petition to raise funds for installing system of water works.

Waco, Tex.—Lots have been purchased for erection of big standpipe on Provident Heights, highest spot in city, for increase efficiency of water service to that portion of Waco. Plans are also materializing for installation of filtration plant and other improvements in water system, for which \$400,000 in bonds was recently voted. Water Commissioners expect to follow new Fort Worth water system to certain extent.

Bridgewater, Va.—Election will be held June 11 at which proposed issue of bonds to amount of \$25,000, to install water works system will be voted upon.

Chehalis, Wash.—Municipal gravity water system has been authorized.

Elliyard, Wash.—Ordering of new water mains for Market st. and probable paving of portion of that street has made it necessary to furnish new laterals for each cross street. Water Committee is investigating matter of employing hydraulic engineer to draft blueprint for complete water works system.

Madison, Wis.—Proposition to issue bonds for \$40,000 for water works extension will be voted on June 14.

West Bend, Wis.—Extension of water mains for about 6,000 ft. has been decided by Council.

CONTRACTS AWARDED

Phoenix, Ariz.—By Salt River Valley Waters Users' Association, for construction of reinforced concrete structures on Arizona Cross-Cut Canal, to Grant Bros. Construction Co., Security Bldg., Los Angeles, Cal., at following bid: Intake—275 cu. yds. concrete (except cement), \$7.95; 13,500 lbs. reinforcing steel, 3.4 cts.; 60 sq. yds. paving, \$1.15. Siphon—5,900 sq. yds. concrete, \$7.05; 370,000 lbs. steel, 3.4 cts.; 125 sq. yds. paving, \$1.15; 2,500 ft. drain pipe, \$1.09. Bridge—47 yds. concrete, \$6.90; 2,400 lbs. steel, 3.4 cts.; one superstructure, \$995. Flume—760 yds. concrete, \$14; 114,600 lbs. steel, 3.4 cts.; 180 yds. paving, \$1. Penstock forebay—600 yds. concrete, \$8.25; 17,550 lbs. steel, 3.4 cts.; 750 yds. paving, \$1; excavating, Class 1, 35 cts.; excavating, Class 2, 55 cts.; excavating, Class 3, \$1.50.

Lincoln, Cal.—To Sacramento Pipe Works, of Sacramento, for 5,625 ft. water mains, for about \$7,300.

Oakland, Cal.—To Wm. Heafey, for extension of high-pressure auxiliary pipe line in 14th st., from Washington west of Market st., for about \$11,465.

Colorado Springs, Col.—To J. S. Schwartz, 1015 E. Boulder st., for construction of 5,000 ft. of water mains and sewers.

Milliken, Col.—For construction of water works, by Board of Trustees, to C. A. Smith, of Denver; estimated cost, \$13,000.

Mathis, Ga.—For reservoir dam, 96 ft. high and 663 ft. long across Tallulah River, near Mathis, to Ambursen Hydraulic Construction Co., of Boston, Mass.

Sylvestor, Ga.—By Council, for construction of sewer system and improvements to present water works plant, to C. W. Murray Co., of Savannah, for \$13,740. Engineers are J. B. McCrary Co., of Atlanta.

Ashton, Ill.—For constructing water works, as follows: Distributing system, to Des Moines Bridge & Iron Works, Des Moines, Ia.; tank to Chicago Bridge & Iron Works, Chicago, Ill., and well to M. Holloran, of Indianapolis, Ind.

South Bend, Ind.—To W. H. Burke & Co., for installation of water connections on South Main and West Division sts. and North Scott st. water connection will be installed by Thomas Williams.

Griswold, Ia.—For water mains, to Quinn & Juelke, of Griswold.

Sioux City, Ia.—For water pipe, to American Cast Iron Pipe Co., for \$25,20 per ton.

Holyoke, Mass.—By Water Commissioners, for new gateway at Whiting st. reservoir, to W. W. Salter, of this city, for \$1,632. Bids for the construction of White reservoir gatehouse were rejected.

Saginaw, Mich.—By Board of Water Commissioners, to A. Gelinas & Sons, for constructing addition to eastern district pumping station in accordance with their bid of \$1,275 (extra concrete and excavation \$6.50 per cu. ft.).

Bolivar, Mo.—By City, for extensions to electric light and water systems from plans of Rollins & Westover, Rialto Bldg., Kansas City, to Commercial Construction Co., of Kansas City.

St. Louis, Mo.—To Lillie Construction Co., of St. Louis, for extension of Webster Groves water system, by Board of Aldermen. Work of laying new mains and installing fire plugs in parts of city not supplied at present will begin at once. Following companies were allowed parts of contracts to furnish pipes and fixtures: United States Cast Iron Pipe Co., James B. Clow & Sons, and Iowa Valve Co. The Iowa Valve Co. got contract for \$3,390 worth of fire plugs.

Webster Groves, Mo.—For furnishing and laying water pipe from plans of Fuller Coult Co., of St. Louis, as follows: For 84,000 ft. 6- and 4-in. cast iron pipe, to U. S. Cast Iron Pipe Co., of St. Louis, at \$25.20 and \$27.20 per ton, respectively; for 36,000 ft. of galvanized iron pipe, to Jas. B. Clow, of Chicago, Ill., at 9.17 cts. per ft., and all castings, at \$50 per ton; for valves and hydrants, to Iowa Valve Co., of Oskaloosa, Ia., and for construction, to Lillie Construction Co., of St. Louis, for \$16,146.

Middletown, O.—By Board of Public Service, for furnishing water pipe, Class B, to U. S. Cast Iron Pipe & Foundry Co., of Chicago, Ill.

Erie, Pa.—By Water Commissioners, for rebuilding of entire pump station, filter house and plant building, to Henry Schenk Co., at \$412,000.

Johnson City, Tenn.—By City, to Cleveland Trinidad Paving Co., to construct water mains and sewers.

Seattle, Wash.—By Board of Public

Works, for laying water mains in 18th ave. south, and other streets, to Jahn Contracting Co., for \$28,692.50.

Mitchell, S. Dak.—To E. L. Dimick, Laurel, Neb., for construction of water mains.

Greenville, Tex.—To T. R. Davis, at \$72,913, for construction of one reservoir and two settling basins for extension of water works.

Regina, Sask.—By Water Works Committee, as follows: Lead pipe, Jas. Robertson & Co., Winnipeg, \$10,188; brass goods, Canadian Brass Co., Galt, Ont., \$5,581; valves, etc., T. McAvity & Co., Winnipeg, \$2,624.

Vancouver, B. C.—For 2,000 lin. ft. lap-welded wrought steel water pipe, to Robertson Godson Co., Ltd., Vancouver, B. C., at \$2.82 per ft. and valves, \$2,099.

BIDS RECEIVED

Jamestown, N. Y.—For reservoir, pipe, etc., from plans of Chester & Fleming, Union Bank Bldg., Pittsburgh, Pa., as follows: Reinforced concrete reservoir of 5,000,000-gals. capacity, Alfred C. Bame, \$58,773; H. C. Brooks Co., \$73,000; Field, Barker & Underwood, Inc., \$84,100; Cullen-Friedstedt Co., \$80,985; W. M. Chisholm & Son, \$65,500; Nicola Building Co., \$6,815; J. N. Bastress & Co., \$94,800; Emery Contracting Co., \$69,800; John M. Heller, \$93,063; Jamestown Construction Co., \$73,475; Chas. C. Haas, \$65,569; John Johnston Construction Co., \$78,799; Simpson Bros., \$89,313; John Mahon, \$79,580; Stobaugh Contracting Co., New York, N. Y., \$89,238; C. M. Neeld, \$85,000. Pipes and castings—(a) 140 tons 24-in. Class B, (b) 293 tons 24-in. Class C, (c) 202 tons 16-in. Class C, (d) 17,000 lbs. specials, castings per lb. U. S. Cast Iron Pipe Co., (a, b and c), \$21.90, (d) 2½ cts.; Warren Foundry Co., (a, b and c) \$23.50, (d) 2½ cts.; Donaldson Iron Co., (a) \$23.84, (b and c) \$22.84, (a) 2½ cts.; R. D. Wood & Co., (a, b and c) \$23, (d) 2½ cts.; Emery Contracting Co., (a, b and c) \$26, (d) 6 cts.; Field, Barker & Underwood, Inc., (a) \$25.25, (b) \$23.25, (c) \$25.25, (d) 3 cts. Laying pipe—(a) Mahony & Sarvak, (b) W. M. Chisholm & Son, (c) Emery Contracting Co., (d) John Johnston Construction Co., (e) Field, Barker & Underwood, Inc. 2,500 lin. ft. 24-in. pipe, (a) \$1.20, (b) \$1.14, (c) \$1.60, (d) \$1.52, (e) \$1.25; 800 lin. ft. 24-in. pipe, (a) \$2, (b) \$1.50, (c) \$2.50, (d) \$1.46, (e) \$1.70; 1,500 lin. ft. 16-in. pipe, (a) \$2.10, (b) \$1, (c) \$2.05, (d) 1.06, (e) ½ cts.; 1,400 lin. ft. 16-in. pipe, (a) \$1.05, (b) 70 cts., (c) \$1.05, (d) 73 cts., (e) \$1.15; 300 cu. yds. rock excavation, (a) \$2.50, (b) \$1.50, (c) \$2.40, (e) \$4.

Seattle, Wash.—For laying water mains on 18th ave. south, as follows: Allain & Hull, \$32,029.10; Elliott Construction Co., \$31,188.10; De Elong & Heltborg, \$30,876.10; Frasca & Coluccio, \$31,075.85; Sparger Concrete Co., \$32,051.90; Young & Uhrich, \$30,939.95; International Dredging Co., \$29,138.90; J. L. Ritchie, \$31,010.00; Jahn Contracting Co., \$28,692.50; Ferguson-Colt Co., \$29,666.50; T. Ryan, \$32,193.40; James Donofrio, \$30,957.33.

LIGHTING AND POWER

San Jose, Cal.—Bonds for College Park Lighting District of \$10,000 have been sold to Mayfield Bank & Trust Co., for sum of \$10,291.75.

Colorado Springs, Col.—Controversy over rates which city shall pay Colorado Springs Light, Heat & Power Co. for supplying electric current for artistic lighting of business section has given rise to talk of independent company being formed by local capitalists.

Stratford, Conn.—Gas mains will be extended to Lordship Park within a few weeks.

Dow City, Ia.—Vote will shortly be taken on bonding city for installation of electric light and power plant.

Fontanelle, Ia.—Installation of electric light system is being considered.

Topeka, Kan.—Board of City Commissioners have asked City Engineer Young and George O'Neil, Superintendent of city electric light plant, to work up specifications for "Great White Way" on East Fourth st., between Kansas ave. and Holiday st.

Lynn, Mass.—General Manager Chas. F. Pritchard, of Lynn Gas & Electric Co., has submitted to Municipal Council figures on price of lights under one year and three year contracts as suggested by Mayor Connery, and it is likely that proposition will be formally considered.

Kalamazoo, Mich.—It is said that light-engineer will be retained by Commission

to draw up plans for remodeling old municipal lighting plant. Bonds in sum of \$140,000 have been voted for city's lighting work.

Minneapolis, Minn.—Council has been petitioned for ornamental lights on Washington ave., from Fifth to 20th ave. north, and on Plymouth, from bridge to Lyndale, on Sixth st., from Hennepin to Fourth ave. south, and on Third st., from Hennepin to Second ave. south.

Miles City, Mont.—Council has voted to employ electrical engineer to take inventory of municipal lighting plant preparatory to selling it to Lower Yellowstone Power Co.

Longport, N. J.—City will issue \$2,000 worth of bonds for improving lighting system and water works.

Westfield, N. J.—Westfield Town Council has instructed Mayor Dennis and Town Clerk Clark to sign five-year contract with Public Service Corporation for street lighting of town at cost of \$10,410 per year, less 2½ per cent.

Albany, N. Y.—Public Service Commission, Second District, has granted application from Wayne Power Co. asking permission to exercise franchise for furnishing of electricity for light, heat and power to towns of Cohocton and Avoca, incorporated villages of Cohocton and Avoca, and unincorporated villages of North Cohocton and Atlanta.

Kenmore, N. Y.—Village Board has granted to Dr. Harry Huver amended franchise for natural gas.

Walden, N. Y.—It has been ordered that advertisement be inserted in several engineering papers informing gas manufacturers that Walden will probably grant gas franchise about July 1, in order that several companies will compete for franchise.

Underwood, N. Dak.—Sum of \$8,000 has been voted for construction of electric light plant.

Sharon, O.—Proposition to bond borough for \$85,000 for erection and operation of municipal electric light plant has been put to vote and carried by 38 votes.

Garrettsville, S. Dak.—Installation of electric light plant will shortly be voted on.

Wheeling, W. Va.—Installation of better lighting system is being discussed.

CONTRACTS AWARDED

Clarksville, Ark.—By Board of Improvement for one 10 x 12 Skinner engine direct connected to 50 kilowatt Ft. Wayne generator, and one 14 x 15 Skinner engine direct connected to 100 kilowatt Ft. Wayne generator, with generator exciters, exciter belts, five panel marble switchboard, complete with instruments and switches for controlling the two generators, two feeders circuits and three street circuits, to E. J. Merkle, Kansas City, Mo.

Osceola, Ark.—By Board of Improvements, to De La Vergne Engine Co., for one 130 horsepower De La Vergne oil engine, arranged for belting to generator.

San Francisco, Cal.—By Board of Public Works, for supplying electric power for the city railroad, to Pacific Gas and Electric Co., on that corporation's bid of 1 cent per kilowatt hour for direct current.

Clayville, N. Y.—By Town, for establishing lighting district, to Utica Gas & Electric Co., of Utica, at \$900 per year for five years.

Gates, N. Y.—By Town Board, to Rochester Railway & Light Co., for lighting streets of town. Work will begin at once on installation of system.

BIDS RECEIVED

Roseville, Cal.—For installing electric distributing plant, as follows: Furnishing Tungsten street lights, Westinghouse Electric Co., 83 cts.; Johns-Manville Co., 83 cts.; Pacific State Electric Co., 83 cts.; General Electric Co., by Roseville Electric Contracting Co., 94.5 cts. Furnishing transformers, Westinghouse Electric Co., \$1,082; Ft. Wayne Electric Co., \$961; Wagner Electric Mfg. Co. (standard), \$921 (high efficiency), \$1,056; General Electric Co., \$1,106; Pacific States Electric Co., \$1,105; McFall Electric Co., \$1,032. Installation of distribution street lights and substation, Electric Construction Co., \$12,900; M. P. Canon, \$13,543; McFall Electric Co., \$15,250; Great Western Powder Co., \$11,400; Central California Construction Co., \$24,407. For duplicating present Pacific Gas & Electric Co. plant, Central California Construction Co., \$22,559.

FIRE EQUIPMENT

Alameda, Cal.—City Clerk has been instructed to advertise for bids for installing of auto tractor on hook and

ladder. Plans and specifications for tractor have been adopted.

San Francisco, Cal.—Fire protection bonds in sum of \$680,000 will be sold on July 1 by Board of Supervisors.

Bridgeport, Conn.—Board of Contract and Supply will issue proposals for construction of addition and several alterations to No. 2 fire engine house.

Manchester, Conn.—Purchase of new combination chemical and hose automobile truck for No. 1 fire house is being considered.

Washington, D. C.—Establishment of fire engine house at intersection of Connecticut ave. and Grant rd., to be equipped with automobile chemical fire engine and hose reel, is proposed.

Sterling, Ill.—Bids are being received for auto truck, combination hose and chemical.

New Albany, Ind.—Purchase of motor fire truck is being considered.

Malden, Mass.—Erection of new central fire station in new location is recommended.

Ware, Mass.—Purchase of motor-drawn fire truck is being discussed.

Melrose, Mass.—Purchase of motor fire apparatus is being considered.

Brunswick, Me.—Appropriation of \$2,500 has been made for fire equipment.

Red Wing, Minn.—About 1,200 ft. of hose will be purchased.

Joplin, Mo.—Improved fire alarm system is being discussed by city.

St. Joseph, Mo.—Recommendation has been made for purchase of motor-driven fire equipment.

Tekamah, Neb.—Purchase of chemical engine has been authorized.

East Syracuse, N. Y.—Village Board has voted to purchase additional fire hose.

Akron, O.—Purchase of new automobile fire apparatus has been authorized.

Columbus, O.—Sum of \$10,000 has been appropriated for purchase of fire plugs.

Columbus, O.—Fire Department will shortly ask for bids to equip same with motor-driven apparatus.

Warren, O.—Appropriation of \$9,000 has been made for purchase of triple combination motor-driven fire truck.

Youngstown, O.—Notice is hereby given that city will sell its bonds, for which sealed bids will be received until 2 o'clock p.m., June 24, at office of City Auditor, West Boardman st., for \$70,000 Fire Department equipment bonds. D. J. Jones, City Auditor.

Tulsa, Okla.—Purchase of new auto pumping engine and fire alarm boxes has been authorized.

New Castle, Pa.—New auto combination truck and automobile will be purchased.

Memphis, Tenn.—New automobile fire engine will be purchased. Bids will shortly be required.

Murfreesboro, Tenn.—New auto fire truck will probably be purchased.

Abilene, Tex.—Committee will purchase new fire equipment.

Newport News, Va.—Movement is on foot to supplant present horse-drawn fire apparatus by motor-driven apparatus, and to abolish North End fire house and company.

Richmond, Va.—Purchase of auto fire engine, to cost \$12,000, has been authorized.

Bellingham, Wash.—Council will probably pass ordinance providing for purchase of two auto trucks, to cost about \$12,000.

Kennewick, Wash.—City will install complete up-to-date fire alarm system in near future and will purchase much new fire-fighting apparatus.

Chippewa Falls, Wis.—Purchase of auto combination hose truck is being discussed.

CONTRACTS AWARDED.

Crookston, Minn.—To W. S. Nott Co., of Minneapolis, for 500 ft. of 2½-in. hose, at \$1 per ft.

Albion, N. Y.—For motor combination chemical and ladder truck, to E. R. Thomas Motor Car Co., of Buffalo, at \$6,000.

Butler, Pa.—To Knox Automobile Co., of Springfield, Mass., for auto fire truck, at \$5,500.

BIDS RECEIVED

Hartford, Conn.—For furnishing Fire Department with fire hose, by Board of Contract and Supply, as follows: C. C. Fire Hose Co., 73 cts. per ft. for 2½-in. hose, \$1.09 for 3-in. hose; Boston Woven Hose & Rubber Co., 73 cts. for 2½-in.; Gutta Percha & Rubber Manufacturing Co., 74 cts. and \$1.10; Combination Ladder Co., 74.9 cts. a ft. for 2½-in. hose.

Syracuse, N. Y.—For furnishing new combination wagon for 13th Ward Fire Co., as follows: A. F. & S. C. Stewart, \$1,325; Combination Ladder Co., \$1,399; Seagrave Co., \$1,385.

Reading, Pa.—For repairing steamer of Reading Fire Co., as follows: Penn Boiler & Machine Works, 470; Reading Scale & Machine Works, \$775.

Boston, Mass.—For furnishing Fire Department with seven runabout autos for use of district chiefs. Bids were: Carter Car Co., \$1,250 each; Rambler company, \$1,475 each; White company, \$1,500 each; Velle company, \$1,500 each.

BRIDGES

Sanford, Fla.—Erection of steel draw bridge across St. John's River at foot of Celery ave. is being planned; estimated cost, \$5,500.

Richmond, Ind.—Appropriations aggregating \$22,501.59 have been passed by County Council. Appropriations for construction of new bridges said to be necessary in various parts of the county were as follows: Mettert, \$785; Thornburg, \$2,600; Salisbury, \$450; Swayne, \$4,200; Scanlan, \$900; Wasson, \$2,300; Bailey, \$450; Wolke, \$400. Appropriation of \$1,900 for general bridge repairs has been passed.

Covington, Ky.—Initial steps have been taken toward erection of bridge across Licking River outside of city to connect Kenton and Campbell counties. Farmers of both counties have been petitioning for structure for many years and Campbell County Commissioners have appropriated \$13,000 towards its construction.

Saginaw, Mich.—Revised plans for new Johnson st. bridge have been completed by City Engineer Eymer and will probably be officially submitted to Board of Public Works. Design calls for bridge of 520 ft. length and five spans.

Central Valley, N. Y.—Plans have been received by Town Superintendent from County Engineer for new concrete bridge to be placed at entrance to Falkirk.

Oswego, N. Y.—R. M. Grant & Co., of New York, were highest bidders on \$40,000 issue of bonds to pay county's share of new Broadway bridge at Fulton.

Chester, Pa.—Erection of Fifth st. bridge will be petitioned for by business men.

Triadelphia, W. Va.—County will erect new bridge in Triadelphia.

CONTRACTS AWARDED

Los Angeles, Cal.—By Board of Supervisors, for constructing reinforced concrete bridge in Santa Paula Canyon, near Ferndale Ranch, to S. M. Kerns, at \$9,000.

Oakland, Cal.—For erecting bridge on Tassajara rd., Pleasanton Township, to Thomas B. Russell, for sum of \$3,120, by Board of Supervisors. Surveyor's estimate for work was \$3,100. Other bidders were: P. H. Hoare, \$3,505, and Ossen & McDonald, \$3,740.

Tampa, Fla.—By Board of Public Works, for constructing bridge over Hillsborough River at Lafayette st., to Edwards Construction Co., for \$189,747.

Watseka, Ill.—To W. H. Shons, Freeport, Ill., at \$6,464.64, for erection of re-

inforced concrete bridge on line between Middleport and Concord Townships.

Belvidere, Ill.—By Highway Commissioners of Smithton Township, Roads and Bridge Committee of Board of Supervisors and B. H. Piepmeyer, assistant State Highway Engineer, for construction of bridges necessitated by recent construction of drainage ditch along the Richland Creek bottom. Two bridges are to be built of reinforced concrete on Freeburg and Douglass and Rittenhouse rds. Joseph Klein was awarded contract on his bid of \$2,480. Other bids submitted were: W. Rupree, \$2,777; Gas Brothers, \$3,174; C. A. Weaver & Son, \$2,970; Geo. Quinlan, \$3,000; Gates & Helmich, \$2,940.

Des Moines, Ia.—By County Supervisors, for constructing four 70-ft. spans of concrete bridge, to Capital City Construction Co., of Des Moines.

Albany, N. Y.—By Board of Public Works, to Oswego Bridge Co., Oswego, N. Y., at \$59,616, for construction of Barge Canal Contract No. 89, which calls for construction of five superstructures and one substructure for highway bridges over Erie Canal, between Lyons and Palmyra, N. Y.

Buffalo, N. Y.—To Great Lakes Dredge & Dock Co., 133 W. Washington st., Chicago, at \$126,871, for construction of bascule bridge across Black Rock harbor at Buffalo.

Lyons, N. Y.—To Oswego Bridge Co., for building of five superstructures and one substructure for highway bridges over Erie Canal, between Lyons and Palmyra. Company's bid was \$59,616. Engineer's estimate of cost was \$65,116.

Altoona, Pa.—By County Commissioners, for construction of two concrete arch bridges and one concrete girder bridge, as follows: Edwin H. Brua, or Hollidaysburg, two arch bridges, as follows: Over Canoe Creek, near Bagshaw's residence, \$1,747; over Clover Creek at Klepser's Mill, \$1,992. Contract is to be completed in 60 days. Other bidders on these bridges were: Canoe Creek, Fogel & Co., \$1,777; Ferro Concrete Co., \$1,927; G. A. & F. M. Wagman, \$2,424; Clover Creek, Fogel & Co., \$2,188; Ferro Concrete Co., \$2,027; G. A. & F. M. Wagman, \$2,983. Contract for concrete girder bridge over Mill Run, near Good's Farm, in Logan Township, was awarded to Fogel & Co. at their bid of \$1,283. Other bidders were: Gable & Myers, \$1,432.38; E. H. Brua, \$1,463; G. A. & F. M. Wagman, \$1,722. Mr. Fogel is to complete the contract in 30 days. Bids submitted on two arch bridges at Irons ville, which was held over were: Ferro Concrete Co., \$9,495; Lanner Bros., \$11,700; Fogel & Co., \$11,786; G. A. & F. M. Wagman, \$13,885. The Ferro people's bid is \$2,205 lower than next highest bid.

Provo, Utah.—To Midwest Engineering Co., Omaha, Neb., at \$16,308.30, for terminal drop, chute and bridge abutments, diversion canals.

MISCELLANEOUS

Los Angeles, Cal.—Purchase of steam shovel is being considered.

Pasadena, Cal.—Two bids for construction of incinerator on South Raymond

ave. site have been opened by City Council and have been referred to Burdette Moody, Civil Engineer, to work them out. Fred P. Smith offered to put in 90-ton Fredsmith destructor plant for \$46,000, while P. F. Dundon offered, on behalf of Universal Engineering Co., to put in 45-ton plant for same amount.

Chicago, Ill.—Immediate consideration of plans for establishment of municipal garbage reduction plant is asked of City Council by Citizen's Association.

Springfield, Ill.—At conference of Commissioners it was decided to purchase motor patrol for use of Springfield Police Department.

Dayton, O.—Bonds, sold for purpose of providing fund for straightening of Miami River, from Washington st. bridge south, in sum of \$385,000, have been acquired by Dayton Savings & Trust Co. of this city, and Breed & Harrison, of Cincinnati, on their joint bid, offering premium of \$1,350.

Chester, Pa.—Councils have practically decided to erect recreation pier at foot of Market st.

Erie, Pa.—Work has been started by special Council Garbage Committee to acquire equipment for proposed garbage disposal plant which Councils have voted to place in Boughton farm near Belle Valley.

South Bethlehem, Pa.—Bids for installation of police alarm system have been opened. Bids were submitted by National Police Signal Co., Rochester, N. Y.; the Gamewell Fire Alarm Telegraph Co., and Dean Electric Co., ranging from \$1,527.38 to \$3,570, with various conditions. Plans and specifications have been referred to Police Committee for thorough investigation and consideration.

Providence, R. I.—Application by Board of Police Commissioners for appropriation of \$8,000 for purchase of two motor patrol wagons to replace horse-drawn vehicles of present use, and for Black Maria used for transportation of prisoners, has been presented to Board of Aldermen and referred to Committee on Finance.

CONTRACTS AWARDED

San Francisco, Cal.—By Board of Public Works, for constructing 43 cars for municipal railroad on Geary st., to W. L. Holman & Co., at their bid price of \$7,700 for each car and \$1,500 apiece for four extra trucks.

Le Sueur Center, Minn.—For erecting fireproof jail and sheriff's residence, to J. B. Nelsen, of Mankato, for \$18,498.

Newburgh, N. Y.—Mayor Corwin has approved of resolutions passed at last meeting of City Council awarding contract for collection of garbage in city to Frank Kramp.

Hazleton, Pa.—For installation of police call system, to Gamewell Fire Alarm Co., at \$3,745.

Woonsocket, R. I.—By Board of Police Commissioners, for wiring city preparatory to installing Gamewell police signal system, to Gamewell company.

Corpus Christi, Tex.—By City Council, for building new City Hall and Fire Station, to Gross Construction Co., at \$36,486.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK.	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
New Jersey...	Newark.....	June 11, 8.15 p.m....	Constrn. cement sidewalks, flagging and curbing.....	R. D. Ardue, Sec'y Bd. Education.
New Jersey...	Camden.....	June 17, 8 p.m.....	Constrn. vitrified brick pav't.....	J. C. Haines, Chm. Comm.
SEWERAGE				
Missouri.....	Doniphan.....	June 11, 8 p.m.....	Constrn. sewer system.....	Buell Cable, City Clk.
Washington...	Mount Vernon...	June 12, 5 p.m.....	Constrn. trunk sewer.....	J. H. Smith, City Clk.
Ohio.....	Cleveland.....	June 13, noon.....	Constrn. sewers on number of streets.....	W. J. Springborn, Dir. Pub. Service.
New Jersey...	Camden.....	June 17, 8 p.m.....	Constrn. sewers in several streets.....	J. C. Haines, Chm. Comm.
WATER SUPPLY				
Oklahoma.....	Fort Sill.....	June 10, 10 a.m.....	Constrn. 10-in. c. i. water pipe, motor pump, etc.....	G. M. Cralle, C. Q. M.
Missouri.....	Doniphan.....	June 11, 8 p.m.....	Constrn. water mains.....	Buell Cable, City Clk.
Arizona.....	Fort Huachuca...	June 12, 10 a.m.....	Constrn. 8½ miles 8-in. steel water pipe.....	Capt. J. L. Jordan, Q. M.
LIGHTING AND POWER				
Ohio.....	Cleveland.....	June 13, noon.....	Furn. arc lights and equipment for plant.....	W. J. Springborn, Dir. Pub. Service.
New Jersey...	Haddon Heights...	June 18, 8 p.m.....	Light. streets for term of years.....	Fred'k Fries, Mayor.
FIRE EQUIPMENT				
Oregon.....	Portland.....	June 27.....	Furn. auto aerial truck, pump, engine, 8 comb. wagons.....	Executive Board of F. D.
BRIDGES				
Delaware.....	Wilmington.....	June 18, noon.....	Constrn. reinforced concrete bridge.....	James Wilson, County Engr.
Michigan.....	Saginaw.....	June 21, 7.30 p.m....	Constrn. bridge over Saginaw River.....	W. F. Jahnke, City Clk.
MISCELLANEOUS				
Massachusetts.	New Bedford....	June 12, 5 p.m.....	Install. steam and water piping at city yard.....	C. F. Lawton, Supt. Streets.
Washington...	Kelso.....	June 18, 8 p.m.....	Constrn. city hall.....	M. J. Lord, City Clk.
Dist. Columbia.	Washington.....	June 22, 11 a.m.....	Install. 2,500 gal. sea water distill. plant at Guantanamo, Cuba Navy Department.	

STREET IMPROVEMENTS

Hartford, Conn.—Advisability of establishment of asphalt plant is being considered.

Torrington, Conn.—Petition has been presented to Borough Board by George F. Farnham asking for grading of Main st. to Daytonville, from Cook's bridge. Engineer has been instructed to get figures for cost of work.

Atlanta, Ga.—Work of regrading and repaving Peachtree st., from Harris to point 200 ft. beyond Baker st., will shortly be commenced.

Coeur D'Alene, Idaho—Coeur d'Alene will build concrete sidewalks in improvement districts where streets have been graded and curb laid. Length of sidewalks to be laid will be approximately 24 miles.

Belvidere, Ill.—At meeting of Street and Alley Committee it was decided to expend approximately \$4,000 in resurfacing and repairing asphalt pavement on State st.

Des Moines, Ia.—University ave., from 37th st. to Glendale cemetery, will be paved with bitulithic. Paving of University ave. is one of largest contracts which will be awarded this year. It consists of over 40,000 yds.

Fort Scott, Kan.—Ordinance has been passed providing for construction of grading, macadamizing, curbing and guttering that portion of Burke st., beginning at south line of Fifth st. and extending south to north line of Sixth st. G. N. Sanford, City Clerk.

New Orleans, La.—Ordinances have been passed authorizing paving of various streets.

Baltimore, Md.—Improvement of Frederick rd. is being discussed.

Easton, Md.—Bids for \$85,000 to \$90,000 worth of street improvement have been opened at Easton and submitted to Engineer Potts for tabulation.

Saginaw, Mich.—Paving of various streets has been authorized, and contracts will shortly be let.

Vineland, N. J.—To macadamize East Landis ave., from borough line to east line of property of State Home for Feeble-Minded Women and make roadway good permanent one, cost will be about \$25,000, according to figures advanced by Road Commissioner Stevens and his road maker, Mr. Stevens. Of this sum 40 per cent., which is \$10,000, will be paid by State Road Department, and State Home will contribute \$8,000, leaving sum of \$7,000 to be raised by Landis Township.

Mechanicville, N. Y.—Village Board has received petition signed by 25 taxpayers asking that special election be called to vote on proposition to pave Park ave., from Second ave. to Fifth ave., South Fourth ave. to Tallmadge Park, and North and South Third aves., with Tarvia. Board instructed Village Engineer Leo. F. Walsh, to prepare estimate of probable cost of work.

Monroe, N. Y.—Resolution has been passed requesting Board of Supervisors to take up with State authorities, matter of completing asphalt of Highland Mills-Monroe rd. into village of Monroe.

Poughkeepsie, N. Y.—It has been decided to pave South White st. with sheet asphalt, also to pave North Hamilton st. with bituminous macadam.

Akron, O.—Petition for paving, grading and installing sewer laterals in Nash st., from Spicer to Fountain sts., has been referred to Street, Sewer and Water Committee.

Cleveland, O.—Ordinances have been passed for improving of various city streets.

Hillsboro, Ore.—City Council has ordered resolutions published for several more blocks of paving, some for bitulithic, some for macadam and one block of rockslite.

Erie, Pa.—Ordinances have been passed for opening of 19th st., from Wayne st. to Buffalo rd. and for curbing and paving various other streets.

Reading, Pa.—Various street improvements will be made in almost every section of city.

Chattanooga, Tenn.—Citizens of Look-out Mountain are considering bonds in sum of \$25,000 for purpose of improving roads.

Fredericksburg, Va.—Vote in Orange County on issuing \$50,000 in bonds for Barbour District and \$75,000 for Taylor District for permanently improving public roads in those two districts, resulted in favor of bond issue by large majority in both districts.

Montesano, Wash.—At meeting of City Council it was ordered that bids be called for improving State st. for five blocks.

Street will be graded, leveled and gravelled and curbs and sidewalks put in.

Seattle, Wash.—Ordinances have been passed providing for improvement of various streets.

CONTRACTS AWARDED

Kankakee, Ill.—To Ed. Taron, Trust & Savings Bank Bldg., at \$45,000 for street paving.

Richmond, Ind.—By Wayne County Board of Commissioners, for 2,918 sq. yds. of macadam paving and concrete curb and gutter in E. Haven ave., to Cronnin & Meredith, 126 S. Fourth st., at \$16,900.

Olathe, Kan.—To George Abbott, at \$9,517, for widening portion of Park st.

Covington, Ky.—By Fiscal Court of Kenton County, to Claude E. Harris, at \$32,184, for construction of five miles of modern asphalt macadam road on Blanklick turnpike.

Portland, Me.—By Commissioner of Public Works, for street paving, as follows: (a) 4,085 sq. yds. India st.; (b) 5,961 sq. yds. Federal st.; (c) 2,851 sq. yds. Veranda st.; (d) 880 sq. yds. Forest ave.; (e) 634 sq. yds. earth excavation, 3,150 sq. yds. concrete road and 3,150 sq. yds. tar surface Brighton ave. John W. Gulliver, (a) \$1.22 per sq. yd.; (b) \$1.24 per sq. yd.; (c) \$1.39 per sq. yd.; (d) \$1.29 per sq. yd.; (e) 90 cts. per sq. yd., 60 cts. per sq. yd. and 15 cts. per sq. yd. Shawmut Contracting Co., (a) \$1.245 per sq. yd.; (b) \$1.245 per sq. yd.; (c) \$1.33 per sq. yd.; (d) \$1.245 per sq. yd.; (e) 78 cts. per sq. yd., 775 cts. per sq. yd. and 185 cts. per sq. yd. Maine Trap Rock & Contracting Co., (a) \$1.24 per sq. yd.; (b) \$1.19 per sq. yd.; (c) \$1.45 per sq. yd.; (d) \$1.28 per sq. yd.; (e) \$1 per sq. yd., 87 cts. per sq. yd. and 16 cts. per sq. yd. Hassam Paving Co., (a) \$1.43 and \$1.67 per sq. yd.; (b) \$1.43 and \$1.67 per sq. yd.; (c) \$1.53 and \$1.75 per sq. yd.; (d) \$1.43 and \$1.67 per sq. yd.; (e) 65 cts. per sq. yd., \$1.05 per sq. yd., \$1.50 per sq. yd. and 17 cts. per sq. yd. Forgiore & Romana, (a) \$1.61 per sq. yd.; (b) \$1.61 per sq. yd.; (c) \$1.81 per sq. yd.; (d) \$1.76 per sq. yd. Contracts were awarded as follows: India st., to John W. Gulliver, \$4,983.70; Federal st., to Main Trap Rock and Contracting Co., \$7,093.59; Veranda st., to Shawmut Contracting Co., \$3,791.83; Forest ave., to Shawmut Contracting Co., \$1,095.60; Brighton ave., to John W. Gulliver, \$2,933.10.

Alma, Mich.—To Marble Cement & Stone Co., Muskegon, Mich., at \$40,000, for 15,000 sq. yds. of concrete paving, with combination curb and gutter.

Detroit, Mich.—By Department of Parks and Boulevards, to F. Porath & Son, at \$43,563.16, for repaving LaFayette blvd., from 19th st. to Western Grand blvd.

Hibbing, Minn.—For big paving contract, by Village Council, to Coons & Butler, of Hibbing and Virginia, who are given job of paving about mile and half of streets with creosoted blocks for \$2.77 per sq. yd., they being lowest of eight bidders. Total cost is about \$150,000 and it is probably largest paving job ever let in this part of Minnesota outside of Duluth. Thoroughfares to be paved are: Second and Third aves. and Pine, Center and Cedar sts. Bids were as follows: Warren Bros., bitulithic, \$2.55; P. McDonnell, wood block, \$2.70; bitulithic, \$2.40; Coons & Butler, three-in. wood block, \$2.57; 3½-in. wood block, \$2.77; bitulithic, \$2.63; Peterson & Johnson, Duluth, wood block, \$2.93; bitulithic, \$2.76; Fielding & Snipley, Minneapolis, 3½-in. wood block, \$2.96; 3-in. wood block, \$2.76; General Contracting Co., bitulithic, \$2.52; E. A. Dahl, Duluth, wood block, \$2.88.

Bismarck, N. Dak.—To Patrick Kelly, by Board of City Commissioners, for grading in improvement district No. 1.

Marlin, Tex.—For paving of two streets to F. L. Wood, of Marlin.

SEWERAGE

Indianapolis, Ind.—Plans for construction of local sewers have been adopted by Board of Public Works as follows: In Catherine st., from Fernway to Bloyd ave.; in alley east of New st., from Raymond to Legrande sts.; in Sherman drive, from Michigan to Walnut sts.; in Vermont st., from Bank ave. to belt railway tracks, and in alley east of Wallace st., from first alley south of New York st. to first alley north of Washington st.

Libby, Mont.—City will shortly advertise for bids on construction of sewers.

Westfield, N. J.—Ordinances have been passed for sewer laterals in several

streets in Fourth Ward, and main sewer line for Fourth Ward.

Schenectady, N. Y.—Board has decided to advertise for bids on laying new sewers in Second Ward.

Bismarck, N. Dak.—Resolution has been passed directing City Engineer to prepare plans and specifications for construction of sewer on Front st., between 12th and Third sts.

Erie, Pa.—Ordinance has been passed for construction of 9-in. sewer in Hill rd., from State st. 400 ft.

Providence, R. I.—Board of Aldermen has adopted resolution presented by Alderman Benjamin P. Moulton, directing Committee on Sewers to investigate and report estimated cost of establishing sewage system for southern portion of Seventh Ward, bounded by Reservoir ave. on northwest, New Haven rd. on northeast and Cranston line on south.

CONTRACTS AWARDED

Baltimore, Md.—or constructing section No. 3 of high level interceptor, by Board of Awards, to H. C. Brooks Co., Clarksburg, W. Va.

Omaha, Neb.—To J. Jensen Co., for construction of Saddle Creek sewer in California and Harney sts. Daniel Butler is City Clerk.

Bonita River, N. J.—By City Council, for laying sewer pipe under railroad tracks, to Contractors Melle and Bruno.

Ellwood City, Pa.—For construction of sewers, as follows: 36-in. storm sewer, George Waller, Wampum, Pa., about \$6,100; small sanitary sewer, William Brennen, city, about \$400.

Ashland, Wis.—To E. R. Harder & Co., Racine, for building new sewer system, east of Bay City Creek, for \$39,399. Branzien & Dunford, of St. Paul, was next nearest bidder, offering to do work for \$41,329.28. Other two bidders were Ritches & Anderson, of Superior, and John Sandstrom, of this city, bid of Ashland contractor being about highest of three.

WATER SUPPLY

Tuscaloosa, Ala.—Extension of water system to cost \$7,000 has been planned.

Turlock, Cal.—Auxiliary pumping station for city water system is planned.

Clayton, Ga.—It has been planned to bring water from springs in mountains in pipes by gravity.

Oskaloosa, Ia.—Installation of water works system has been planned.

Storm Lake, Ia.—Extension of water system and installation of filter plant have been authorized; cost, \$15,000.

Kalamazoo, Mich.—About 30,000 ft. of water extensions are needed; estimated cost, \$32,000.

Deer Wood, Minn.—Extension of water mains to district from Crosby is planned.

Akron, O.—Council has instructed Server Frase to purchase 1,000 water meters.

Port Clinton, O.—Five thousand dollars' worth of water works bonds have been sold to Citizen's National Bank of Wooster. Money will be used in rebuilding water works intake pipe and making other repairs.

Quinlan, Okla.—Bonds in sum of \$20,000 will be voted on for installation of water works system.

Chester, Pa.—Common Council will re-advertise for bids on water extensions.

Cuero, Tex.—City Council is being petitioned for larger water mains.

Dallas, Tex.—Plans are being prepared for water filtration plant.

CONTRACTS AWARDED

Southington, Conn.—By Board of Water Commissioners, to Hartford Paving & Construction Co., Hartford, Conn., for laying approximately 21,000 ft. of 12-, 8- and 6-in. cast iron water pipes.

Cleburne, Tex.—By City Council, for hydrants and valves for Water Department, to Columbia Iron Works, of Chattanooga, Tenn., and for about five miles of pipe, to American Cast Iron Pipe Co., of Birmingham, Ala.

LIGHTING AND POWER

Kendallville, Ind.—City Council after receiving full report from engineers of Toledo, O., on construction of electric light plant, have decided to advertise for machinery and complete equipment. According to specifications amount to be expended for machinery ranges between \$5,000 and \$100,000.

Ellensburg, Wash.—Installation of cluster lights in business streets has been ordered.